

# **Health Care Facilities Construction and Maintenance**

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**A Study of Construction and  
Maintenance Activities, Needs, and  
Procurement Policies of the Health  
Care Industry in the United States**

**1997**

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**By  
Eric Lee  
University of Washington  
Seattle, Washington 98195  
(206) 543-7612**

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## TABLE OF CONTENTS

|  | <b>PAGE</b> |
|--|-------------|
| <b>General Introduction .....</b>  | 1           |
| <b>Regional Division of Facilities.....</b>  | 2           |
| <br><b>Construction and Maintenance Activities, Needs, and Procurement Policies of Hospitals</b>                 |             |
| Description of Hospital Respondents .....  | 3           |
| Construction Activity.....   | 4           |
| Maintenance Activity.....  | 6           |
| Contracting Procedures.....  | 7           |
| Analysis by Facility Characteristic .....  | 8           |
| Size of Facility .....   | 8           |
| Intensive Care Facilities.....   | 9           |
| Facility Age.....  | 10          |
| Occupancy Rate .....   | 10          |
| Public vs. Private Facilities.....   | 11          |
| Regional Differences.....  | 13          |
| Construction Related Problems .....  | 13          |
| Future Trends Impacting Construction.....  | 14          |
| Conclusions.....   | 15          |
| Tables 1-10 .....  | 16          |
| <br><b>Construction and Maintenance Activities, Needs, and Procurement Policies of Long Term Care Facilities</b> |             |
| Description of Long Term Care Facility Respondents ..  | 32          |
| Construction Activity.....   | 33          |
| Maintenance Activity.....  | 34          |
| Contracting Procedures.....  | 37          |
| Analysis by Facility Characteristic .....  | 38          |
| Size of Facility .....   | 38          |
| Skilled Nursing Facilities.....  | 38          |
| Facility Age.....  | 39          |
| Occupancy Rate .....   | 39          |
| Public vs. Private Facilities.....   | 40          |
| Regional Differences.....  | 42          |

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|  |           |
|--|-----------|
| Construction Related Problems .....                  | 42        |
| Future Trends Impacting Construction.....            | 42        |
| Conclusions.....                                     | 43        |
| Tables 11-20 .....                                   | 45        |
| <br>   |           |
| <b>APPENDIX .....</b>                                | <b>61</b> |
| Survey of Hospital Construction Needs                |           |
| Survey of Long Term Care Facility Construction Needs |           |

## List of Tables

### (Table 1-10 for Hospitals)

|          |   |
|----------|---|
| Table 1  | General Description of Hospitals                          |
| Table 2  | Information on Hospital Construction Expenditure          |
| Table 3  | Information on Maintenance                                |
| Table 4  | Information on Contracting                                |
| Table 5  | Variable Impacted by Size (# of Set-Up Beds) of Hospitals |
| Table 6  | Variable Impacted by % Intensive Care Beds of Hospitals   |
| Table 7  | Variable Impacted by Age of Structure                     |
| Table 8  | Variable Impacted by Occupancy Rate                       |
| Table 9  | Difference between Public and Private Hospitals           |
| Table 10 | Hospital Characteristics by Region                        |

### (Table 11-20 for Long Term Care Facilities)

|          |  |
|----------|--|
| Table 11 | General Description of Facilities                        |
| Table 12 | Expenditure on Construction, Maintenance, and Repair     |
| Table 13 | Information on Maintenance                               |
| Table 14 | Information on Contracting                               |
| Table 15 | Variable Impacted by Size (# of Set-Up Beds) of Facility |
| Table 16 | Variable Impacted by Percent Skilled Nursing Beds        |
| Table 17 | Variable Impacted by Age of Structure                    |
| Table 18 | Variable Impacted by Occupancy Rate                      |
| Table 19 | Difference between Public and Private Hospitals          |
| Table 20 | Hospital Characteristics by Region                       |

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## **List of Figures**

Figure 1      Relative Construction Budget Trends by Study Regions  
**(Figure 2-9 for Hospitals)**

Figure 2      Breakdown of Private and Publicly-Owned Hospital Facilities

Figure 3      Construction Expenditures

Figure 4      General Nature of Construction

Figure 5      Construction Budget Trends for Next 5 Years (1997-2001)

Figure 6      Relative Expenditures on Major Maintenance and Repair

Figure 7      Relative Contributing Cause for Major Maintenance and Repair

Figure 8      Breakdown of Contracting Methods

Figure 9      Breakdown of Bidding Methods between Public and Private Facilities  
**(Figure 10-17 for Long Term Care Facilities)**

Figure 10     Breakdown of Private and Publicly-Owned Facilities

Figure 11     Construction Expenditures

Figure 12     General Nature of Construction

Figure 13     Construction Budget Trends for Next 5 Years (1997-2001)

Figure 14     Relative Expenditures on Major Maintenance and Repair

Figure 15     Relative Contributing Cause for Major Maintenance and Repair

Figure 16     Breakdown of Contracting Methods

Figure 17     Breakdown of Bidding Methods between Public and Private Facilities

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## **General Introduction**

This document contains the results of two surveys aimed at studying the construction activities, maintenance needs, and procurement policies of the U.S. hospitals and long term care facilities. A similar study conducted in 1989 was used as a baseline of the trend analysis presented in portions of this study. This 1996 survey did not ask some of the questions which were posed in the 1989 survey. Likewise there were questions concerning the trends of spending projection, major facility maintenance problem areas, and the source of maintenance requirements that were added to this survey.

The survey results show there are some marked differences between hospitals and long term care facilities. The average occupancy rate and number of admissions per year for hospitals are 66% and 8495, compared to 95% and only 199 respectively for long term care facilities. Hospitals also have a higher percentage of public ownership. The average construction budget for hospitals is three to ten times greater than that of long term care facilities, while the average number of set-up beds is almost the same.

On the other hand, the order of relative expenditures broken down by the different areas of the facility and the order of contributing cause for major maintenance and repairs are consistent between hospitals and long term care facilities.

## Regional Division of Facilities

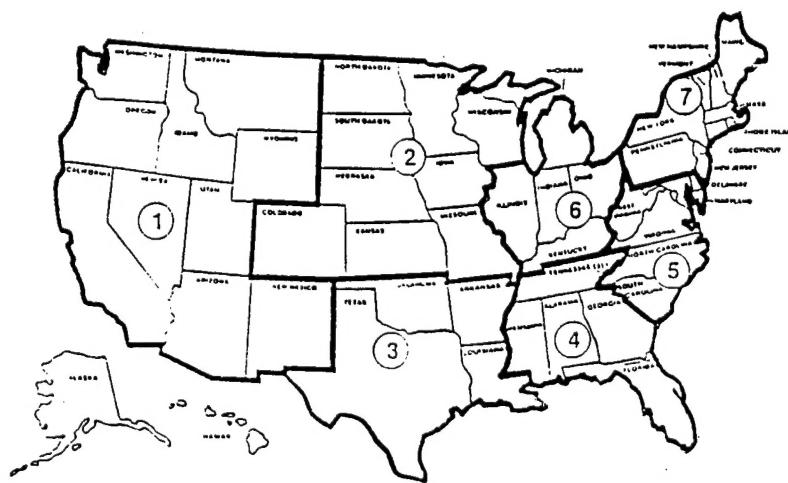
The United States was divided into the seven regions shown in Figure 1 for the purpose of this study. Tables 10 and 20 summarize the respective regional differences in the hospital and long term care facilities.

### Hospitals

| Region                 | overall | 1   | 2     | 3   | 4   | 5   | 6   | 7   |
|------------------------|---------|-----|-------|-----|-----|-----|-----|-----|
| Increase Significantly | 25.4%   | 27% | 14.3% | 64% | 43% | 40% | 22% | 26% |
| Increase Slightly      | 11.6%   | 8%  | 14.3% | 9%  | 14% | 13% | 13% | 11% |
| Remain Roughly Same    | 26.0%   | 27% | 38.1% | 27% | 0%  | 13% | 22% | 32% |
| Decrease Slightly      | 18.5%   | 19% | 19.0% | 0%  | 0%  | 27% | 26% | 5%  |
| Decrease Significantly | 18.5%   | 19% | 14.3% | 0%  | 43% | 7%  | 17% | 26% |

### Long Term Care Facilities

| Region                 | overall | 1   | 2   | 3    | 4   | 5    | 6   | 7     |
|------------------------|---------|-----|-----|------|-----|------|-----|-------|
| Increase Significantly | 26.5%   | 10% | 40% | 100% | 25% | 0%   | 56% | 33.3% |
| Increase Slightly      | 23.5%   | 10% | 10% | 0%   | 50% | 0%   | 22% | 33.3% |
| Remain Roughly Same    | 28.4%   | 40% | 30% | 0%   | 0%  | 100% | 22% | 16.8% |
| Decrease Slightly      | 7.9%    | 20% | 0%  | 0%   | 0%  | 0%   | 0%  | 8.3%  |
| Decrease Significantly | 13.7%   | 20% | 20% | 0%   | 25% | 0%   | 0%  | 8.3%  |



**Figure 1: Relative Construction Budget Trends by Study Regions**

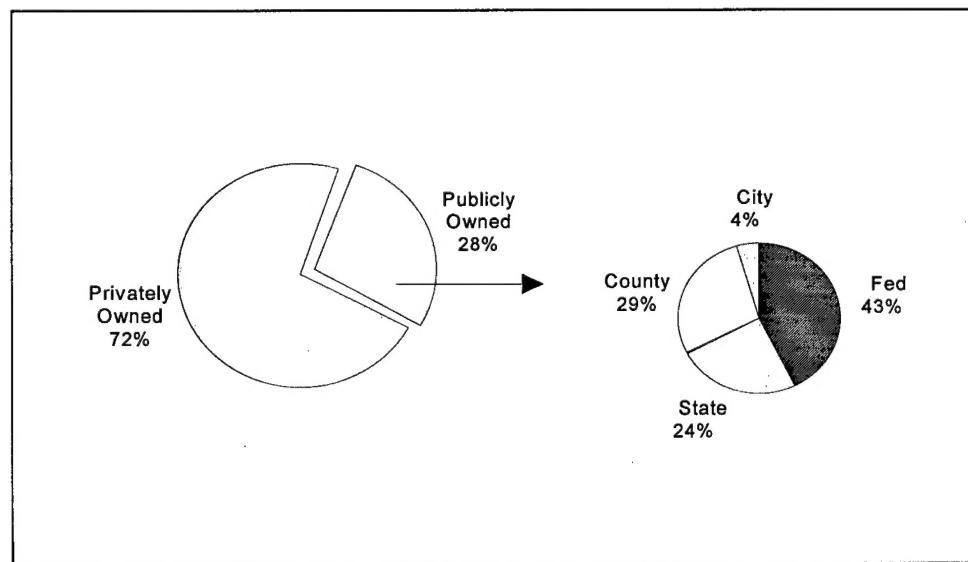
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## ***Construction and Maintenance Activities, Needs, and Procurement Policies of Hospitals***

### **DESCRIPTION OF HOSPITAL RESPONDENTS**

A total of 173 responses were received from hospitals throughout the United States. These respondents represented facilities with an average of 309 licensed beds and 244 set-up beds. They also represented an average of 25 intensive care or critical care beds, 93 private rooms and 110 semi-private rooms. About 22 percent of the respondents (38 hospitals) also had wards.

The average occupancy rate was 66.3% with an average of 8,495 admissions per year or an equivalency of 34.8 admissions per set-up bed. The average age of the primary hospital structure was 30 years. Approximately 28% of the responding hospitals were publicly-owned, of which 43%, 25%, 29%, and 4% were owned by federal, state, county, and city agencies, respectively (Figure 2). While this survey represents fewer hospitals and fewer number of beds per facility than the previous study, percentage breakdowns are quite similar. Notable exceptions are a lower occupancy rate (from 71% to 66%) and a higher percentage of federally owned hospitals (from 28% to 43%) among the publicly-owned facilities. See Table 1 for details.



**Figure 2: Breakdown of Private and Publicly-Owned Hospital Facilities**

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## **CONSTRUCTION ACTIVITY**

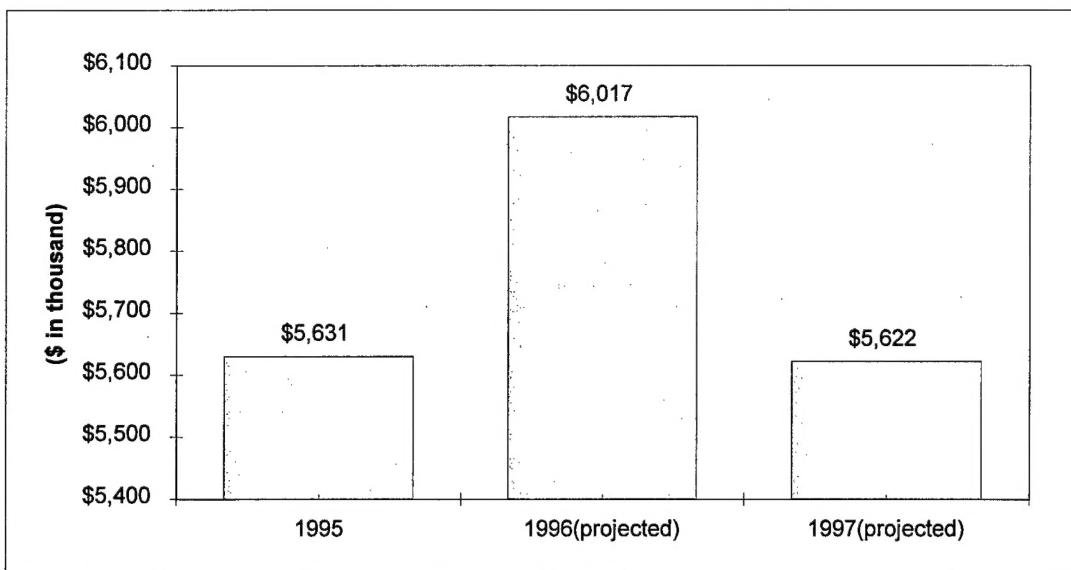
Table 2 contains and Figure 3 depicts construction expenditure figures for 1995, 1996, and 1997. The average amount spent on construction during 1995 was \$5.6 million. Of this, 29% was allocated to new construction, 19% was spent on maintenance and repairs, and 51% was spent on renovation and remodeling.

In response to the question of the general nature of construction, addition of the support space (laboratories, pharmacy, radiology space, etc.) accounted for 23%, followed by patient rooms for 11%, administrative space for 5.1%, operating rooms for 3.2%, psychiatric ward for 2.9%, and Alzheimer's ward for 0.4%. (Figure 4) The majority of respondents (53%), however, indicated that these funds were spent in "other" areas, which included general renovation/remodeling (27 respondents), outpatient facilities (12 respondents), emergency room expansion (9 respondents), clinics (8 respondents), parking (6 respondents), ambulatory care (6 respondents), MD offices (5 respondents), life safety code requirements (4 respondents), utility upgrade (4 respondents), and facelift (3 respondents). Some funds were channeled into new service areas. Examples of new or expanded services include sleep lab, express care room, TB Iso room, community education facility, youth development facility, CRC lab, cardiovascular program space, and radiation therapy wards. Some other areas mentioned were infrastructure, roof repairs, window replacement, conversion from semi-private to private rooms, replacement of beds, skilled nursing facility, urgent care facility, environmental upgrade, and fire alarm system upgrades.

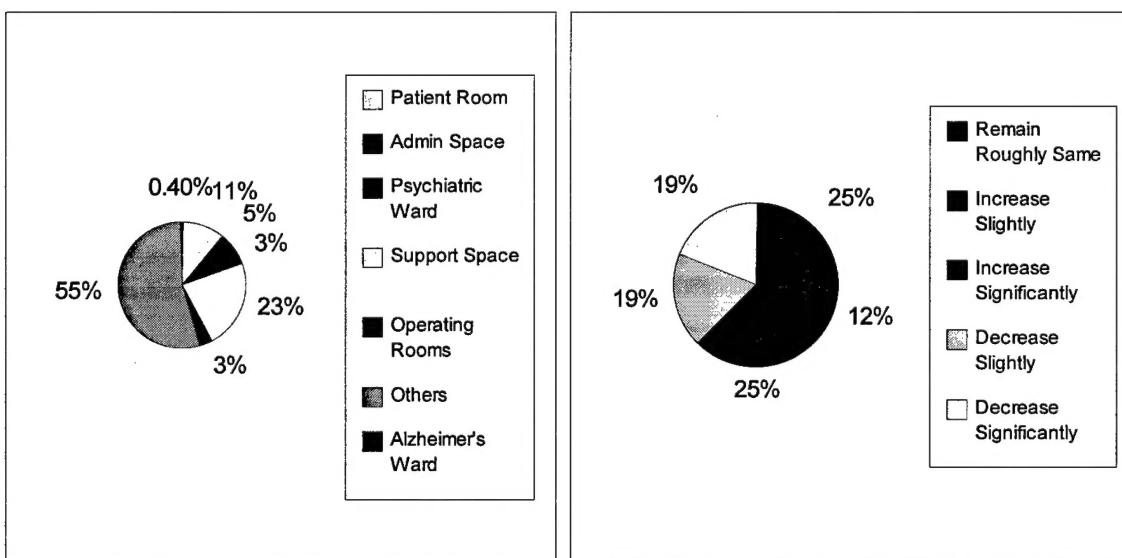
The survey indicated only 16.4% (an average of \$487,000) of the construction work (not including maintenance and repairs) was performed by hospital in-house personnel in 1995.

Hospital respondents projected that they would be spending an average of \$6,017,000 in 1996 (25% for new construction, 23% for maintenance/repairs, and 52% for renovation) and \$5,622,000 in 1997 (31% for new construction, 21% for maintenance/repairs, and 48% for renovation).

In projecting construction budgets for the next five years (1997-2001), Figure 5 shows 25%, 12%, 25%, 19%, and 19% of respondents respectively marked "Increase Significantly", "Increase Slightly", "Remain Roughly the Same", "Decrease Slightly", and "Decrease Significantly". Approximately 20% of all construction expenditures are received from government sources such as direct appropriations, tax supported bonds, etc. See Table 2 for further details.



**Figure 3: Construction Expenditures**

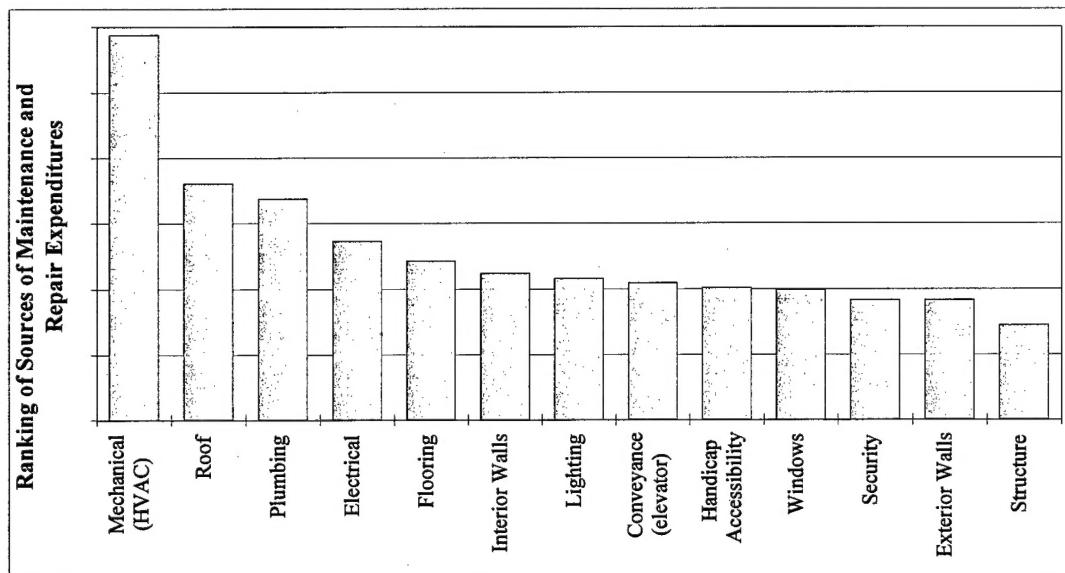


**Figure 4: General Nature of Construction**

**Figure 5: Construction Budget Trends for Next 5 years (1997-2001)**

## MAINTENANCE ACTIVITY

A series of questions were asked about the maintenance aspects of the facility (see Table 3). Figure 6 shows the tally of responses to the question of the source of major maintenance and repair costs. Mechanical (HVAC) system was ranked the highest (greatest expenditure), followed by roof, plumbing, electrical, "others" (not shown), flooring, interior walls, lighting, conveyance(elevator), handicap accessibility, windows, exterior walls, security, and structure. A total of seven respondents marked "others" for this question. The list of "others" consisted of life safety, steam plant, fire alarms, asbestos removal, parking, water distribution, and ground maintenance.

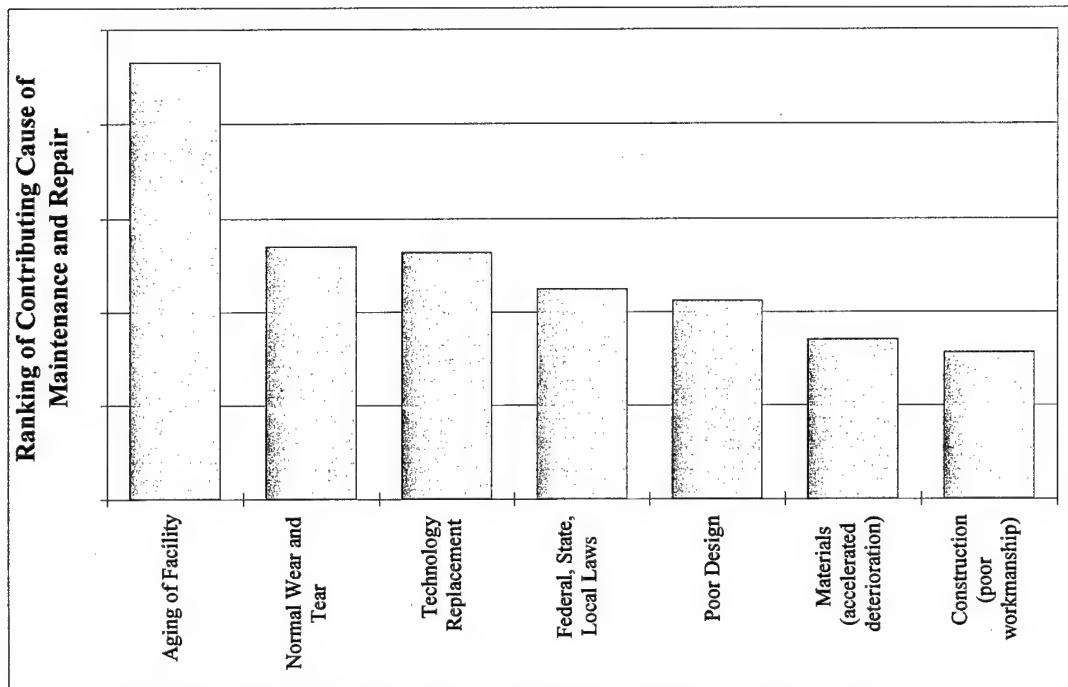


**Figure 6: Relative Expenditures on Major Maintenance and Repair** (Actual figures from Table 3 were adjusted by taking the inverse of a modified scale, 1-10, for a better visual representation of the ranking of expenditures)

A total of 70 responded on a question of what change would be made if any particular system or component were to be replaced based on the past problems. The largest group of respondents (41 respondents) expressed their concerns over HVAC systems, wanting either an increase in the capacity of the system, conversion of the system to DDC (Direct Digital Control), or more efficient Air Conditioning and Heating. Each of these desires reflects dissatisfaction with earlier system specifications. The roofing system was a concern for many respondents, but no clear conclusion could be drawn as to which type of roofing system was favored by most respondents. Some other examples of the changes they would like to make were more efficient lighting systems, flexible facilities, design, and elevator upgrade.

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Figure 7 shows the response to the question of the cause of major maintenance and repair costs. Aging of the facility was ranked the highest (most contributing cause), followed by normal wear and tear; technology replacement; federal, state, and local laws; poor design; materials (accelerated deterioration); construction (poor workmanship); and "others".



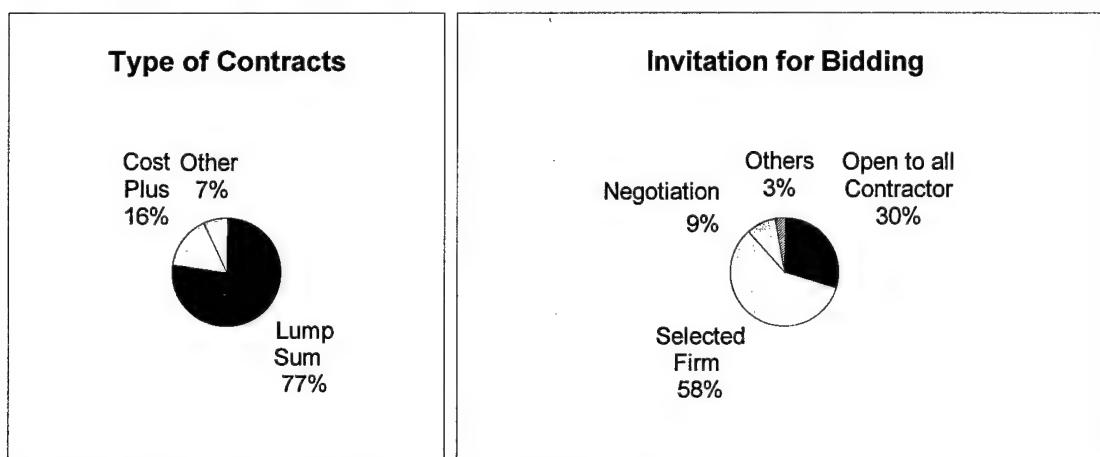
**Figure 7: Relative Contributing Cause for Major Maintenance and Repair** (Actual figures from Table 3 were adjusted by taking the inverse of a modified scale, 1-10, for a better visual representation of the ranking of contributing cause)

## CONTRACTING PROCEDURES

A series of questions were asked about the awarding of construction contracts (see Table 4). An average of 9.1 construction contracts per facility was expected to be awarded in 1997. As shown in Figure 8, the majority (77%) of respondents use a lump sum (fixed price) contracting method, while 16% of them use a cost plus method. Approximately 7% responded that they used other methods. Examples of the other methods were GMP (guaranteed maximum price) (13 respondents), design build (4 respondents), time and materials (2 respondents), and a GMP with shared savings.

Most construction contracts (82%) are competitively bid. For these competitively bid contracts, only 30 % of them are "open to all contractors", 58% are "restricted to selected firms on bidders list", 9% are based on "negotiations", and 3% are "others". Examples of "others" include set-aside contracts for the small business and the small business owned by the disadvantaged group. The total percentage of the above breakdown exceeds 100% because some respondents marked more than one answer.

To the question of how the cost of construction contracts were distributed among different contractors in monetary terms, 59% was awarded to general contractors, followed by subcontractors (specialty contractors) (22%), professional construction management (CM) (11%), design build (9%), and "others" (0.6%). Examples of "others" included architect/engineering design, in-house personnel, and purchase order.



**Figure 8: Breakdown of Contracting Methods**

## **ANALYSIS BY FACILITY CHARACTERISTIC**

The survey results were analyzed to see how the construction budgets, contracting procedures, facility maintenance, and other facility related matters were influenced by different variables such as the size of hospital (number of set-up beds), number of Intensive Care Facilities, age of facility, occupancy rate, public vs private facilities, and regional differences.

### **Size of Facility**

Responding hospitals were grouped into four different size categories, consistent with the 1989 study. Table 5 contains a tabulation of data with respect to these size categories. As one might expect, the total budgets of the hospitals and number of construction

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contracts to be awarded increased with the size of hospital (number of set-up beds). The larger hospitals also had higher occupancy rates. Other variables noted to be related to the size of hospital was the ownership of the hospital. Larger hospitals had a higher percentage of government ownership compared to smaller ones, although the overall average percentage of government ownership regardless of the size of hospital was only 28.3%.

Many variables, however, did not reveal a discernible pattern in relation to the size of hospital. Examples of the variables that were not related to the size of hospitals were the allocation of the funds to new construction, renovation, and maintenance, the nature of expenditures in terms of adding different spaces, the percentage of construction work performed by in-house personnel, problem areas for major maintenance or repair. This was also true for the type of construction contracts awarded (lump sum or cost plus), percentage of competitively bid contracts, bidding process, and distribution of construction contracts (general, subcontract, design build, or professional construction management).

### **Intensive Care Facilities**

Responding hospitals were grouped into five different categories on the basis of the ratio of intensive care/critical care beds to set-up beds. About 72% of 132 respondents accounted for the middle two categories of the ratio between 5% and 15% (see Table 6). It must be noted that intensive/critical care beds generally require a higher degree of focus on patient care, necessitating greater requirements for nursing care and patient monitoring. Hospitals with larger portions of intensive/critical care beds had higher total budgets for construction in 1995 through 1997. This is also true for the percentage of the construction work performed by in-house personnel and the occupancy rates.

Many variables, however, did not vary in a discernible pattern in relation to the portions of intensive/critical care beds. Some of the variables that were not related to the portions of intensive care/critical beds were the allocation of the funds to new construction, renovation, and maintenance, the nature of expenditures in terms of adding different spaces, problem areas and causes that had been the source of major maintenance or repair costs. This was also true for the type of construction contracts awarded (lump sum or cost plus), percentage of competitively bid contracts, bidding process, and distribution of construction contracts (general, subcontract, design build, or profession construction management).

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There were some notable differences between the results of this survey and the one performed in 1989. In the 1989 survey, it was noted that the hospitals with a larger percentage of intensive/critical care beds occur in slightly smaller, newer, and private hospitals, and that no significant differences were noted between hospitals when compared on the basis of occupancy rates. This survey, however, showed that the hospitals with a larger percentage of intensive/critical care beds occur in larger hospitals, and did not present any discernible pattern for the age of structures and private hospitals. These results underscore the fact that such relationships cannot be assumed to remain the same from year to year.

### **Facility Age**

The survey was analyzed by grouping into five different age categories (see Table 7). The most unique aspect occurred in the first age category, less than five years of age. The uniqueness within this period was somewhat consistent with the 1989 survey result. For the hospitals less than five years of age, construction expenditures in 1995 and 1996 are disproportionately high compared to the older hospitals. This is also true for the ratio of the intensive/critical care beds to set-up beds as well as the percentage of the construction work performed by in-house personnel. However, if only hospitals with more than five years of age were considered, the construction expenditures generally increased with the age of structures.

Some other variables were related to the age of hospital. For example, newer hospitals had more beds in private rooms, which was consistent with the trends of the health care industry. Although the survey results indicate a higher percentage of government ownership for the hospitals with less than five and more than 46 years of age, no clear pattern could be established over the different age categories. The newer hospitals also spent a higher percentage of funds in adding supporting spaces such as laboratory, pharmacy, radiology, etc.

Many variables, however, did not vary in a discernible pattern in relation to the age of hospitals. The allocation of the funds to new construction, renovation, and maintenance, the type of construction contracts awarded (lump sum or cost plus), percentage of competitively bid contracts, bidding process, and distribution of construction contracts (general, subcontract, design build, or professional construction management) were not related to the age of hospitals.

### **Occupancy Rate**

The occupancy rates are an indication of a hospital's activity. In this analysis, the hospitals were grouped into five different categories (see Table 8). The survey results

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indicated larger hospitals had generally higher occupancy rates. This was also true for hospitals with more intensive/critical beds and more private beds.

The occupancy rates were closely related to the construction expenditures in 1995 and 1996. The numbers indicate that the higher occupancy rates necessitated more expenditures in construction. The trend of the construction expenditures in 1997, however, was not as striking without clear reasons other than the fact that the 1997 expenditures were future estimates, not actual or reserved, for most respondents. The categories of higher occupancy rates represent higher proportions of government-owned hospitals. Lower health care cost and more widely available trauma units might have attracted more patients to government-owned hospitals.

In responding to a question of construction budgets for the next five years (1997 - 2001), a higher percentage of hospitals in lower occupancy rate categories responded their budgets are likely to "Increase Significantly" or "Decrease Significantly", while a higher percentage of hospitals in higher occupancy rate categories responded their budgets are likely to "Remain Roughly the Same". Hospitals with higher occupancy rates appear to be more likely to maintain their current budget level, while budgets for the hospitals with lower occupancy rates will likely be fluctuating.

Many variables, however, did not show a discernible pattern in relation to the occupancy rates. Some of the variables that were not related to the portions of occupancy rates were the distribution of the funds to new construction, renovation, and maintenance, the nature of expenditures in terms of adding different spaces, problem areas and causes that had been the source of major maintenance or repair costs. This was also true for the type of construction contracts awarded (lump sum or cost plus), percentage of competitively bid contracts, bidding process, and distribution of construction contracts (general, subcontract, design build, or professional construction management).

### **Public versus Private Facilities**

Responding hospitals were grouped into two different categories, public and private (see Table 9). Public hospitals, which account for 28% of all respondents, tend to be slightly larger and older facilities when compared to private hospitals. They also tend to have slightly higher occupancy rates as discussed in the previous section and a much lower number of admissions per year.

Construction expenditures and plans were examined for these two categories. It is notable that public hospitals compared to private hospitals spent more than twice as much in overall construction in 1995 and 1996, and were projected to spend slightly more in 1997. When hospitals were compared in terms of the budgets for the next five years, a

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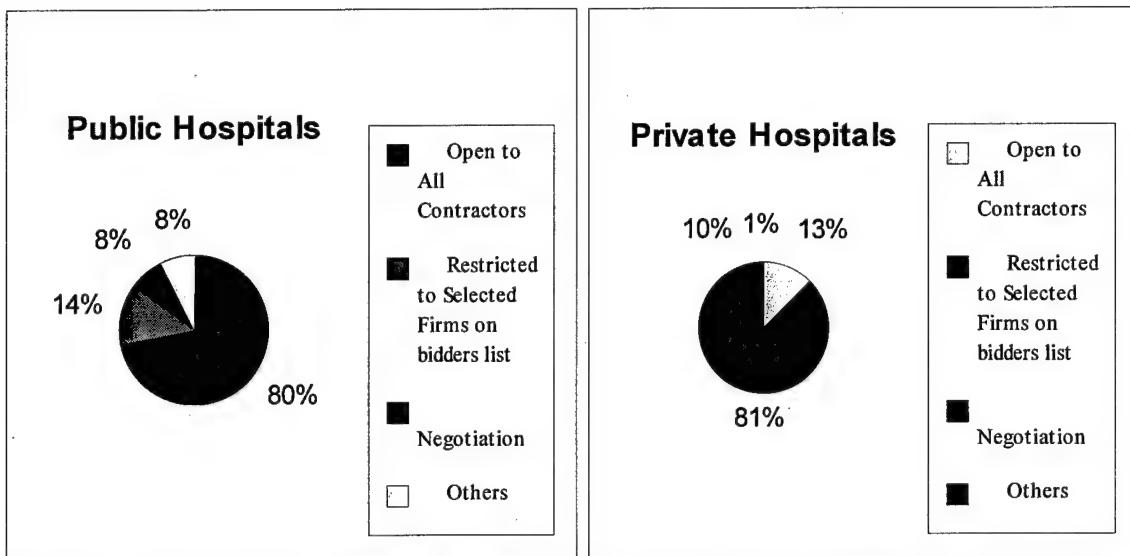
greater portion of private hospitals responded that their budgets will "Increase Significantly", while more portions of public hospitals responded that their budget will be likely to "Decrease Significantly". The conclusion, thus, could be drawn from these trends that differences in budgets between public and private hospitals for the next five years or so will level out. It is of interest to note that the 1989 survey results showed the private hospitals spent slightly more per facility than the public hospitals.

The allocation of funds to new construction, maintenance/repairs, and renovation was examined for public and private hospitals. There was a discernible pattern in allocating construction funds. The public hospitals allocated a higher percentage of funds in maintenance and repairs compared to private hospitals, while the private hospitals allocated a higher percentage of funds to renovation and remodeling. This may have to do with the average age of the public hospitals being greater than that of the private hospitals. Older facilities would naturally require more work in maintenance and repairs than newer ones. The survey results also revealed the public hospitals allocated more funds for the construction work performed by in-house personnel, compared to the private hospitals.

As expected, some significant differences were noted in contracting practices between public and private hospitals. A total of 93% of all contracts awarded for the public hospitals was the lump sum type contract, compared to 78% for the private hospitals. Only a total of 6% of contracts awarded for the public hospitals was the cost plus type contract, compared to 20% for the private hospitals. The private hospitals also utilize some (10%) other types of contract such as time and materials and guaranteed maximum price (GMP).

To a question of how the costs of construction contracts are distributed, the public hospitals awarded a majority (79%) of their contracts to general contractors and 19% to the specialty contractors, while the private hospitals awarded considerably less (51%) for general contractors and more (23%) for specialty subcontractors. Another notable fact was the private hospitals used design build and professional construction management (CM) contracts in 9.3% and 15% of overall contract awards, respectively, while the public hospitals utilized these types of contract for only 1.9% and 0.2%, respectively.

Figure 9 shows clear differences between public and private facilities on how contractors are invited to submit bids. Most public hospitals (80%) responded "open to all public", while this was the case for only 13% of private hospitals respondents. Most private hospitals (81%), however, used a bidding process that was "restricted to selected firms on bidders list", while this was the case for only 14% of the public hospitals.



**Figure 9: Breakdown of Bidding Methods between Public and Private Hospitals**  
(The total exceeds 100% because some respondents provided multiple marks)

The public and private hospitals do not appear to differ appreciably when compared on the basis of the source and cause of major maintenance and repairs.

### Regional Differences

Hospitals responding to this study were grouped into the same seven different geographic regions as for the 1989 study. (See Table 10 for details and page 2 for regional breakdown. Although it was generally difficult to note clear patterns on most variables, readers might be able to obtain information for specific variables on the interested regions from the table provided.

### CONSTRUCTION RELATED PROBLEMS

One of the questions in the survey was "What is your top construction related problem?" A total of 68% (118 of 173) of respondents provided an answer to the question. The most frequently cited problem was the timely completion of the projects (17 respondents). Among other answers provided were: meeting state and safety code requirements (13 respondents); interruption of the hospital operation (10 respondents); lack of competent contractors (10 respondents); high construction cost and cost control after the contract award (10 respondents); poor, inflexible, and incomplete design (15 respondents);

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punchlist and contract close-out (5 respondents); impact of change orders (4 respondents); lack of quality CM (construction manager) and PM (project manager) (3 respondents); lack of funds (3 respondents); lack of planning including site visit (2 respondents); material availability (2 respondents); low bid selection contracting practice (2 respondents); compliance with the contract documents (2 respondents); and warranty (2 respondents). Problems that were mentioned as inherent to the hospital facilities included: HVAC system (4 respondents); asbestos removal (2 respondents); roof replacement (2 respondents); facility modernization; replacement of aging plant; and exterior walls. Other problems mentioned were: lack of coordination between projects; relocation of existing units; and construction safety.

Most of the items addressed above appear to be typical problems related to the construction of hospitals, as the similar problems had also been addressed in the previous survey performed in 1989.

### **FUTURE TRENDS IMPACTING CONSTRUCTION**

The last question asked in the survey was "What trends relating to construction, if any, do you see impacting facility construction over the next 5- 10 years?" A total of 63% (109 of 173) of respondents provided an answer to this question. The most frequently addressed future trend was the outpatient service emphasis (27 respondents) in the health care industry. This change in service philosophy also appeared to provide an influence on at least one major facility related area: More renovation/remodeling of the facility but less new construction (15 respondents) to accommodate outpatient service. Survey results revealed that the renovation/remodeling trend was also fueled by several other factors such as decreasing construction funds (9 respondents), merging of functions (1 respondents), emphasis on managed care (3 respondents), etc.

Changes in technology seemed to have a significant impact on the hospital construction industry. A total of 5 respondents said that new technology will require space modification to accommodate the changes. Systems for flexibility (7 respondents) and increasing demands for more cost effective practice (3 respondents) were also expected with less construction funds available in the future. A total of eight respondents said more stringent code requirements were anticipated for the future, of which three were related to the Americans with Disabilities Act (ADA).

More attention will be given to environmental concerns such as conversion to energy efficient systems (3 respondents) and additional seismic requirements (4 respondents). It is, however, interesting to note that not a single respondent addressed hazardous waste concerns, which was a complete turnaround from the 1989 survey. The 1989 survey

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received a total of 16 responses collectively for such environmental concerns as energy management, asbestos, and hazardous waste.

Several other significant changes were noted in the way construction services will be obtained. Seven respondents predicted more Design Build contracts will be used, while three mentioned CM service. Two responded that partnering between the owner and the contractor will be the way to manage projects. Three respondents expressed a concern over a shortage of qualified contractors and diminishing workmanship. Other trends noted were: anticipation of tighter QC practice; more hotel-like hospital settings; and emphasis on smaller and more custom projects.

Most of the items addressed above appear to be the same issues that had been mentioned in the previous survey performed in 1989.

## **CONCLUSIONS**

Construction budgets for the construction industry overall for the next five years are projected to remain at a steady level. Considering increasing construction costs, it appears considered that market opportunity for construction contractors for the hospital industry is not as bright as it was in the past. However, a few pointers out of these survey results could be utilized in seeking future business opportunities. There is a definite emphasis on renovation and remodeling over new construction due to several reasons such as change in operational philosophy, new technology accommodation, savings of funds, etc. This climate may represent a unique opportunity for some contractors to enter into long term contracts to provide construction services to hospitals that are undergoing rapid changes in facility needs. Such customer-supplier relationship are not unusual in industries where owners operate large facilities. Contractors also must be aware of the different methods being used to award the construction contracts. As it always has been, the public hospitals will more likely have a bidding process open to all interested parties, while private hospitals will use selected bidders lists more extensively. The public hospitals also will use the lump sum type of contract extensively, while the private hospitals are expected to mix other types such as cost plus and guaranteed maximum price contracts with the lump sum type of contract.

**Table 1**  
**General Description of Hospitals\***

| <i>descriptor</i>                       | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|---|-------------|---------------|----------------|----------------|
| Number of Licensed Beds                 | 309         | 266           | 1032           | 42             |
| Number of Set Up Beds                   | 244         | 202           | 900            | 0              |
| Number of Intensive/critical Care Rooms | 25          | 16            | 200            | 0              |
| Number of Private Rooms                 | 93          | 54            | 759            | 0              |
| Number of Semi-Private Rooms            | 110         | 76            | 911            | 0              |
| Number of Wards                         | 33          | 0             | 500            | 0              |
| Occupancy Rate                          | 66.3%       | 68.0%         | 100.0%         | 20.0%          |
| Number of Admission per Year            | 8495        | 6400          | 50000          | 20             |
| Age of the Primary Structure (Years)    | 30          | 30            | 130            | 1              |
| Government Owned                        | 28.3%       |               |                |                |
| Federal                                 | 42.9%       |               |                |                |
| State                                   | 24.5%       |               |                |                |
| County                                  | 28.6%       |               |                |                |
| City                                    | 4.1%        |               |                |                |
| Privately Owned                         | 71.7%       |               |                |                |

\*173 respondents

**Table 2**  
**Information on Hospital Construction Expenditure\***

| <i>descriptor</i>  | <i>mean**</i>    | <i>median**</i> | <i>maximum**</i>   | <i>minimum**</i> |
|--|------------------|-----------------|--------------------|------------------|
| Construction Expenditures in 1995                        | \$5,631          | \$2,500         | \$70,000           | \$0              |
| New Construction   | 28.9%            |                 |                    |                  |
| Maintenance & Repair                                     | 18.9%            |                 |                    |                  |
| Renovation/Remodeling                                    | 51.1%            |                 |                    |                  |
| General Nature of Construction                           |                  |                 |                    |                  |
| % Add Patient Room                                       | 10.9%            |                 |                    |                  |
| % Add Administration Space                               | 5.1%             |                 |                    |                  |
| % Add Support Space (lab, pharmacy, etc)                 | 23.1%            |                 |                    |                  |
| % Add Operating Rooms                                    | 3.2%             |                 |                    |                  |
| % Add Alzheimer's Ward                                   | 0.4%             |                 |                    |                  |
| % Add Psychiatric Ward                                   | 2.9%             |                 |                    |                  |
| % Others   | 53.0%            |                 |                    |                  |
| Construction(excl. maint./repair) by In-House Personnel  | \$487<br>(16.4%) | \$70<br>(5.0%)  | \$10,000<br>(100%) | \$0<br>(0.0%)    |
| Construction Expenditures projected for 1996             | \$6,017          | \$2,000         | \$150,000          | \$0              |
| New Construction   | 25.4%            | 0.0%            | 100.0%             | 0.0%             |
| Maintenance & Repair                                     | 23.4%            | 13.0%           | 100.0%             | 0.0%             |
| Renovation/Remodeling                                    | 51.6%            | 50.0%           | 100.0%             | 0.0%             |
| Construction Expenditures projected for 1997             | \$5,622          | \$3,000         | \$71,500           | \$0              |
| New Construction   | 30.9%            | 0.0%            | 100.0%             | 0.0%             |
| Maintenance & Repair                                     | 20.8%            | 10.0%           | 100.0%             | 0.0%             |
| Renovation/Remodeling                                    | 48.0%            | 50.0%           | 100.0%             | 0.0%             |
| Construction Budgets for the Next Five Years (1997-2001) |                  |                 |                    |                  |
| Remain Roughly the Same                                  | 26.0%            |                 |                    |                  |
| Increase Slightly  | 11.6%            |                 |                    |                  |
| Increase Significantly                                   | 25.4%            |                 |                    |                  |
| Decrease Slightly  | 18.5%            |                 |                    |                  |
| Decrease Significantly                                   | 18.5%            |                 |                    |                  |
| Amount of Construction that is Government Funded         | 20.4%            | 0.0%            | 100.0%             | 0.0%             |

\*173 respondents

\*\*\$ in thousands

**Table 3**  
**Information on Maintenance\*\***

| <i>descriptor</i>  | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|--|-------------|---------------|----------------|----------------|
| <b>Source of Major Maintenance and/or Repair Costs, "1" being the worst problem area</b>   |             |               |                |                |
| Exterior Walls   | 7.6         | 8.0           | 13.0           | 1.0            |
| Interior Walls   | 6.2         | 6.0           | 13.0           | 1.0            |
| Security   | 7.6         | 8.0           | 13.0           | 1.0            |
| Flooring   | 5.8         | 5.0           | 14.0           | 1.0            |
| Electrical   | 5.1         | 4.5           | 12.0           | 1.0            |
| Roof   | 3.9         | 3.0           | 13.0           | 1.0            |
| Structure  | 9.7         | 11.0          | 14.0           | 1.0            |
| Windows  | 7.0         | 7.0           | 13.0           | 1.0            |
| Handicap Accessibility   | 6.9         | 7.0           | 13.0           | 1.0            |
| Mechanical (HVAC)  | 2.4         | 2.0           | 9.0            | 1.0            |
| Plumbing   | 4.1         | 4.0           | 13.0           | 1.0            |
| Lighting   | 6.5         | 6.0           | 13.0           | 1.0            |
| Conveyance (elevator)  | 6.7         | 6.0           | 13.0           | 1.0            |
| Others   | *5.4        | *3.0          | *14.0          | *1.0           |
| <b>Cause of Significant Maintenance and Repair Costs, "1" being the worst problem area</b> |             |               |                |                |
| Federal, State, Local Laws   | 3.6         | 3.0           | 11.0           | 1.0            |
| Materials (accelerated deterioration)  | 4.7         | 5.0           | 7.0            | 1.0            |
| Construction (poor workmanship)  | 5.1         | 6.0           | 9.0            | 1.0            |
| Normal Wear and Tear   | 3.0         | 3.0           | 7.0            | 1.0            |
| Aging of Facility  | 1.7         | 1.0           | 6.0            | 1.0            |
| Poor Design  | 3.8         | 3.0           | 8.0            | 1.0            |
| Technology Replacement   | 3.0         | 3.0           | 7.0            | 1.0            |
| Others   | *6.3        | *8.0          | *8.0           | *1.0           |

\* not an accurate representation due to either very limited number of or no respondent

\*\*173 respondents

**Table 4**  
**Information on Contracting\***

| <i>descriptor</i>                                  | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|--|-------------|---------------|----------------|----------------|
| # of Construction Contracts to be Awarded in 1997  | 9.1         | 4.0           | 160.0          | 0.0            |
| Type of Construction Contracts Awarded             |             |               |                |                |
| % Lump Sum (fixed price)                           | 77.4%       | 100.0%        |                |                |
| % Cost Plus  | 15.8%       | 0.0%          |                |                |
| % Others   | 6.8%        | 0.0%          |                |                |
| Percentage of Contracts that are competitively Bid | 81.9%       | 95.0%         |                |                |
| Invitation for Bidding                             |             |               |                |                |
| Open to All Contractors                            | 30.1%       |               |                |                |
| Restricted to Selected Firms on Bidders List       | 58.4%       |               |                |                |
| Negotiation  | 8.7%        |               |                |                |
| Others   | 2.7%        |               |                |                |
| Distribution of Contracts                          |             |               |                |                |
| % General Contractor                               | 59.4%       | 67.5%         |                |                |
| % Subcontractors (specialty contractors)           | 21.8%       | 10.0%         |                |                |
| % Design Build                                     | 7.1%        | 0.0%          |                |                |
| % Professional Construction Mgmt (CM) Contract     | 10.9%       | 0.0%          |                |                |
| % Others   | 0.6%        | 0.0%          |                |                |

\*173 respondents

**Table 5**  
**Variable Impacted by Size (# of Setup Beds) of Hospital**

| <b>Number of set-up beds</b>                             | <b>150-**</b> | <b>150-250**</b> | <b>250-350**</b> | <b>350+**</b> |
|--|---------------|------------------|------------------|---------------|
| Number of Hospitals                                      | 50            | 41               | 28               | 30            |
| <b>Information about Hospital</b>                        |               |                  |                  |               |
| Avg. Number of Licensed Beds                             | 159.9         | 260.9            | 362.0            | 609.1         |
| Avg. Number of Set Up Beds                               | 99.8          | 196.6            | 299.6            | 502.1         |
| Avg. Occupancy Rate                                      | 58.1%         | 69.5%            | 68.4%            | 73.7%         |
| Avg. Number of Admission per Year                        | 5,153         | 7,370            | 10,882           | 16,196        |
| Avg. Age of the Primary Structure (Years)                | 30.1          | 25.6             | 28.5             | 32.5          |
| Privately Owned  | 80.0%         | 73.2%            | 67.9%            | 63.3%         |
| Government Owned   | 20.0%         | 26.8%            | 32.1%            | 36.7%         |
| Federal  | 30.0%         | 45.5%            | 55.6%            | 45.5%         |
| State  | 10.0%         | 18.2%            | 22.2%            | 36.4%         |
| County   | 50.0%         | 36.4%            | 11.1%            | 18.2%         |
| City   | 10.0%         | 0.0%             | 11.1%            | 0.0%          |
| <b>Construction Plans for the Hospital</b>               |               |                  |                  |               |
| Construction Expenditures in 1995                        | \$2,639       | \$5,885          | \$8,435          | \$8,081       |
| New Construction   | 38.9%         | 26.3%            | 26.1%            | 17.8%         |
| Maintenance & Repair                                     | 18.6%         | 17.2%            | 15.8%            | 18.3%         |
| Renovation/Remodeling                                    | 40.1%         | 54.7%            | 58.1%            | 63.9%         |
| General Nature of Construction                           |               |                  |                  |               |
| % Add Patient Room                                       | 12.3%         | 12.4%            | 7.9%             | 11.1%         |
| % Add Administration Space                               | 4.1%          | 5.5%             | 5.9%             | 8.0%          |
| % Add Support Space (lab, pharmacy, etc)                 | 17.0%         | 18.4%            | 32.9%            | 29.1%         |
| % Add Operating Rooms                                    | 3.2%          | 2.3%             | 1.0%             | 3.7%          |
| % Add Alzheimer's Ward                                   | 0.5%          | 0.0%             | 0.0%             | 0.0%          |
| % Add Psychiatric Ward                                   | 0.2%          | 3.3%             | 6.5%             | 4.6%          |
| % Others   | 62.7%         | 55.1%            | 41.6%            | 44.0%         |
| Construction(excl. maint./repair) by In-House Personnel  | \$112         | \$236            | \$1,012          | \$953         |
|  | (13.5%)       | (17.0%)          | (16.1%)          | (17.5%)       |
| Construction Expenditures projected for 1996             | \$2,930       | \$4,850          | \$10,141         | \$8,842       |
| New Construction   | 27.6%         | 25.9%            | 30.5%            | 20.4%         |
| Maintenance & Repair                                     | 24.9%         | 23.2%            | 16.2%            | 18.6%         |
| Renovation/Remodeling                                    | 47.5%         | 50.5%            | 53.4%            | 64.1%         |
| Construction Expenditures projected for 1997             | \$3,018       | \$6,464          | \$8,443          | \$9,043       |
| New Construction   | 32.1%         | 40.4%            | 42.2%            | 23.5%         |
| Maintenance & Repair                                     | 17.6%         | 19.9%            | 18.5%            | 16.8%         |
| Renovation/Remodeling                                    | 49.3%         | 39.3%            | 39.0%            | 59.7%         |
| Construction Budgets for the Next Five Years (1997-2001) |               |                  |                  |               |
| Remain Roughly the Same                                  | 24.0%         | 26.8%            | 17.9%            | 36.7%         |
| Increase Slightly  | 8.0%          | 7.3%             | 14.3%            | 13.3%         |
| Increase Significantly                                   | 38.0%         | 26.8%            | 10.7%            | 16.7%         |
| Decrease Slightly  | 8.0%          | 19.5%            | 32.1%            | 33.3%         |
| Decrease Significantly                                   | 22.0%         | 17.1%            | 25.0%            | 3.3%          |
| % of Construction that is Government Funded              | 14.6%         | 18.1%            | 19.6%            | 19.3%         |

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 5 (Continued)**
**Variable Impacted by Size (# of Setup Beds) of Hospital**  
*(\$ in thousands)*

| <b>Number of set-up beds</b>  | <b>150-**</b> | <b>150-250**</b> | <b>250-350**</b> | <b>350+**</b> |
|---|---------------|------------------|------------------|---------------|
| <b>Information on Maintenance</b>   |               |                  |                  |               |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |               |                  |                  |               |
| Exterior Walls  | 7.8           | 7.6              | 7.8              | 8.3           |
| Interior Walls  | 6.4           | 6.3              | 5.8              | 5.6           |
| Security  | 7.9           | 7.5              | 5.4              | 8.2           |
| Flooring  | 5.7           | 5.1              | 5.6              | 6.3           |
| Electrical  | 6.5           | 4.7              | 5.7              | 3.9           |
| Roof  | 4.8           | 4.8              | 2.8              | 3.2           |
| Structure   | 10.1          | 8.8              | 10.4             | 9.8           |
| Windows   | 7.1           | 6.9              | 7.5              | 6.2           |
| Handicap Accessibility  | 7.2           | 6.6              | 5.9              | 6.7           |
| Mechanical (HVAC)   | 2.2           | 1.8              | 3.3              | 2.4           |
| Plumbing  | 4.4           | 3.4              | 4.4              | 4.1           |
| Lighting  | 5.9           | 6.6              | 7.4              | 6.4           |
| Conveyance (elevator)   | 7.3           | 7.4              | 5.2              | 6.3           |
| Others  | *5.0          | *4.5             | *1.0             | *9.0          |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |               |                  |                  |               |
| Federal, State, Local Laws  | 3.6           | 3.0              | 3.7              | 3.2           |
| Materials (accelerated deterioration)   | 4.9           | 4.1              | 4.7              | 5.2           |
| Construction (poor workmanship)   | 5.3           | 5.3              | 5.0              | 5.2           |
| Normal Wear and Tear  | 2.9           | 3.0              | 3.0              | 2.9           |
| Aging of Facility   | 1.9           | 1.6              | 1.7              | 1.5           |
| Poor Design   | 3.5           | 3.8              | 3.8              | 4.8           |
| Technology Replacement  | 3.1           | 2.8              | 2.7              | 3.6           |
| Others  | *8.0          | *6.3             | *1.0             | *0.0          |
| <b>Information on Construction Contracts</b>  |               |                  |                  |               |
| # of Construction Contracts to be Awarded in 1997                                   | 4.3           | 6.4              | 12.8             | 19.4          |
| Type of Construction Contracts Awarded  |               |                  |                  |               |
| % Lump Sum (fixed price)  | 74.4%         | 75.5%            | 77.0%            | 76.5%         |
| % Cost Plus   | 13.5%         | 19.4%            | 17.7%            | 19.5%         |
| % Others  | 12.1%         | 5.0%             | 5.4%             | 4.0%          |
| Percentage of Contracts that are competitively Bid                                  | 85.0%         | 76.5%            | 73.0%            | 82.3%         |
| Invitation for bidding  |               |                  |                  |               |
| Open to All Contractors   | 24.0%         | 29.3%            | 32.1%            | 40.0%         |
| Restricted to Selected Firms on Bidders List  | 66.0%         | 61.0%            | 64.3%            | 56.7%         |
| Negotiation   | 10.0%         | 12.2%            | 17.9%            | 3.3%          |
| Others  | 2.0%          | 2.4%             | 0.0%             | 6.7%          |
| Distribution of Contracts   |               |                  |                  |               |
| % General Contractor  | 63.0%         | 59.9%            | 57.1%            | 52.9%         |
| % Subcontractors (specialty contractors)  | 14.5%         | 24.9%            | 21.5%            | 27.5%         |
| % Design Build  | 8.4%          | 2.7%             | 7.6%             | 13.7%         |
| % Professional Construction Management (CM)   | 12.2%         | 8.8%             | 13.8%            | 5.4%          |
| % Others  | 0.4%          | 1.3%             | 0.0%             | 0.5%          |

\* not an accurate representation due to either very limited number of or no respondent

\*\*Category range includes the lower-end integer.

**Table 6****Variable Impacted by % Intensive Care Beds of Hospital**

| <i>% of Intensive Care Beds</i>                         | <i>0-5**</i> | <i>5-10**</i> | <i>10-15**</i> | <i>15-20**</i> | <i>20+**</i> |
|---|--------------|---------------|----------------|----------------|--------------|
| Number of Hospitals                                     | 19           | 66            | 30             | 9              | 8            |
| <b>Information about Hospital</b>                       |              |               |                |                |              |
| Avg. Number of Licensed Beds                            | 270.1        | 280.9         | 331.0          | 437.9          | 483.9        |
| Avg. Number of Set Up Beds                              | 250.6        | 223.6         | 250.7          | 320.4          | 333.9        |
| Avg # of Intensive/critical Care Rooms                  | 7.6          | 16.6          | 30.1           | 59.0           | 100.5        |
| Avg % of Intensive/critical Care Rooms                  | 3.1%         | 7.5%          | 12.0%          | 18.1%          | 47.9%        |
| Avg. Occupancy Rate                                     | 60.1%        | 64.1%         | 66.2%          | 70.7%          | 70.5%        |
| Avg. Number of Admission per Year                       | 3249         | 9295          | 10456          | 8780           | 11948        |
| Avg. Age of the Primary Structure                       | 29.8         | 29.3          | 27.6           | 31.4           | 29.9         |
| Privately Owned   | 57.9%        | 75.8%         | 70.0%          | 88.9%          | 75.0%        |
| Government Owned  | 42.1%        | 24.2%         | 30.0%          | 11.1%          | 25.0%        |
| Federal   | 50.0%        | 37.5%         | 66.7%          | 100.0%         | 50.0%        |
| State   | 25.0%        | 12.5%         | 0.0%           | 0.0%           | 50.0%        |
| County  | 25.0%        | 43.8%         | 22.2%          | 0.0%           | 0.0%         |
| City  | 0.0%         | 6.3%          | 11.1%          | 0.0%           | 0.0%         |
| <b>Construction Plan for the Hospital</b>               |              |               |                |                |              |
| Construction Expenditures in 1995                       | \$3,745      | \$4,272       | \$6,520        | \$8,294        | \$7,675      |
| New Construction  | 40.6%        | 27.7%         | 35.0%          | 15.6%          | 13.3%        |
| Maintenance & Repair                                    | 20.8%        | 15.1%         | 17.8%          | 13.3%          | 12.8%        |
| Renovation/Remodeling                                   | 38.6%        | 55.5%         | 47.2%          | 71.1%          | 74.0%        |
| General nature of Construction                          |              |               |                |                |              |
| % Add Patient Room                                      | 9.4%         | 10.6%         | 10.2%          | 6.1%           | 18.6%        |
| % Add Administration Space                              | 3.8%         | 2.5%          | 9.8%           | 3.3%           | 6.3%         |
| % Add Support Space (lab, pharmacy, etc)                | 26.8%        | 19.0%         | 32.5%          | 17.8%          | 20.0%        |
| % Add Operating Rooms                                   | 6.8%         | 1.9%          | 2.5%           | 3.9%           | 0.0%         |
| % Add Alzheimer's Ward                                  | 0.0%         | 0.3%          | 0.0%           | 0.0%           | 0.0%         |
| % Add Psychiatric Ward                                  | 7.9%         | 0.6%          | 1.0%           | 5.6%           | 10.0%        |
| % Others  | 39.7%        | 62.8%         | 43.3%          | 63.9%          | 45.1%        |
| Construction by In-House Personnel                      | \$224        | \$318         | \$574          | \$2,068        | \$213        |
|   | (10.3%)      | (14.8%)       | (17.7%)        | (20.3%)        | (10.3%)      |
| Construction Expenditures projected for 1996            | \$2,655      | \$4,459       | \$5,367        | \$10,153       | \$8,349      |
| New Construction  | 26.9%        | 24.5%         | 28.7%          | 37.2%          | 23.8%        |
| Maintenance & Repair                                    | 23.3%        | 20.7%         | 28.1%          | 15.0%          | 21.0%        |
| Renovation/Remodeling                                   | 49.8%        | 54.8%         | 46.5%          | 47.8%          | 55.3%        |
| Construction Expenditures projected for 1997            | \$2,811      | \$6,449       | \$6,928        | \$9,961        | \$7,290      |
| New Construction  | 22.0%        | 39.1%         | 38.4%          | 26.1%          | 33.1%        |
| Maintenance & Repair                                    | 26.6%        | 16.7%         | 15.7%          | 20.6%          | 29.7%        |
| Renovation/Remodeling                                   | 51.5%        | 43.4%         | 45.7%          | 53.3%          | 37.2%        |
| Construction Budget for the Next Five Years (1997-2001) |              |               |                |                |              |
| Remain Roughly the Same                                 | 31.6%        | 28.8%         | 16.7%          | 22.2%          | 12.5%        |
| Increase Slightly                                       | 0.0%         | 12.1%         | 6.7%           | 33.3%          | 25.0%        |
| Increase Significantly                                  | 26.3%        | 28.8%         | 33.3%          | 11.1%          | 0.0%         |
| Decrease Slightly                                       | 31.6%        | 13.6%         | 16.7%          | 11.1%          | 37.5%        |
| Decrease Significantly                                  | 10.5%        | 19.7%         | 26.7%          | 11.1%          | 12.5%        |
| % of Construction that is Government Funded             | 25.6%        | 15.9%         | 6.9%           | 0.0%           | 22.5%        |

\$ in thousands

\*\*Category range includes the lower-end integer.

**Table 6 (Continued)**  
**Variable Impacted by % Intensive Care Beds of Hospital**

| % of Intensive Care Beds  | 0-5** | 5-10** | 10-15** | 15-20** | 20+** |
|---|-------|--------|---------|---------|-------|
| <b>Information on Maintenance</b>   |       |        |         |         |       |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |       |        |         |         |       |
| Exterior Walls  | 9.1   | 7.7    | 7.7     | 8.0     | 8.3   |
| Interior Walls  | 5.8   | 6.5    | 6.6     | 4.7     | 5.2   |
| Security  | 3.9   | 8.2    | 8.1     | 5.0     | 5.3   |
| Flooring  | 5.6   | 5.8    | 5.2     | 4.5     | 5.5   |
| Electrical  | 6.3   | 5.1    | 5.4     | 6.2     | 4.2   |
| Roof  | 4.1   | 4.1    | 3.2     | 4.5     | 6.5   |
| Structure   | 10.6  | 9.9    | 9.6     | 10.3    | 7.5   |
| Windows   | 7.6   | 7.3    | 7.1     | 8.0     | 4.7   |
| Handicap Accessibility  | 6.8   | 6.4    | 6.9     | 5.9     | 7.0   |
| Mechanical (HVAC)   | 2.3   | 2.1    | 2.5     | 2.4     | 2.3   |
| Plumbing  | 3.5   | 4.0    | 4.2     | 5.7     | 4.0   |
| Lighting  | 6.2   | 6.3    | 6.6     | 5.7     | 8.3   |
| Conveyance (elevator)   | 7.8   | 6.9    | 6.0     | 3.7     | 6.7   |
| Others  | *1.0  | *6.4   | *3.0    | *0.0    | *0.0  |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |       |        |         |         |       |
| Federal, State, Local Laws  | 3.1   | 3.2    | 3.5     | 2.6     | 5.4   |
| Materials (accelerated deterioration)   | 4.5   | 5.2    | 4.1     | 5.3     | 4.8   |
| Construction (poor workmanship)   | 5.5   | 5.3    | 5.2     | 5.3     | 6.7   |
| Normal Wear and Tear  | 3.0   | 3.0    | 2.7     | 2.1     | 2.6   |
| Aging of Facility   | 1.6   | 1.8    | 1.6     | 2.2     | 1.4   |
| Poor Design   | 4.3   | 3.9    | 4.0     | 4.8     | 3.0   |
| Technology Replacement  | 2.8   | 2.6    | 3.2     | 2.8     | 2.9   |
| Others  | *1.0  | *5.5   | *0.0    | *0.0    | *8.0  |
| <b>Information on Construction Contracts</b>  |       |        |         |         |       |
| # Construction Contracts to be awarded in 1997                                      | 6.1   | 6.9    | 16.5    | 14.2    | 8.3   |
| Type of Construction Contracts Awarded  |       |        |         |         |       |
| % Lump Sum (fixed price)  | 64.9% | 71.9%  | 81.0%   | 85.0%   | 91.3% |
| % Cost Plus   | 30.4% | 16.4%  | 16.2%   | 7.5%    | 8.8%  |
| % Others  | 4.6%  | 11.7%  | 2.8%    | 6.3%    | 0.0%  |
| % of Contracts that are competitively Bid   | 75.3% | 80.4%  | 77.1%   | 65.6%   | 93.4% |
| Invitation for Bidding  |       |        |         |         |       |
| Open to All Contractors   | 42.1% | 27.3%  | 33.3%   | 11.1%   | 12.5% |
| Restricted to Selected Firms on Bidders List  | 47.4% | 66.7%  | 56.7%   | 88.9%   | 62.5% |
| Negotiation   | 10.5% | 12.1%  | 10.0%   | 11.1%   | 12.5% |
| Others  | 5.3%  | 0.0%   | 3.3%    | 11.1%   | 12.5% |
| Distribution of Contracts   |       |        |         |         |       |
| % General Contractor  | 71.3% | 57.3%  | 61.1%   | 29.0%   | 51.4% |
| % Subcontractors (specialty contractors)  | 20.4% | 18.7%  | 25.1%   | 44.1%   | 21.4% |
| % Design Build  | 5.2%  | 7.7%   | 2.0%    | 25.5%   | 12.9% |
| % Professional Construction Mgmt (CM)   | 1.6%  | 15.3%  | 10.1%   | 1.4%    | 14.3% |
| % Others  | 2.8%  | 0.6%   | 0.0%    | 0.0%    | 0.0%  |

\* not an accurate representation due to either limited number of or no respondent

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 7**  
**Variable Impacted by Age of Structure**

| <b>Age of Primary Structure</b>                         | <b>0-5**</b> | <b>5-15**</b> | <b>15-25**</b> | <b>25-35**</b> | <b>35-45**</b> | <b>45+**</b> |
|---|--------------|---------------|----------------|----------------|----------------|--------------|
| Number of Hospitals                                     | 10           | 16            | 46             | 43             | 34             | 21           |
| <b>Information about Hospital</b>                       |              |               |                |                |                |              |
| Avg. Number of Licensed Beds                            | 338.8        | 271.8         | 295.6          | 305.2          | 321.6          | 335.5        |
| Avg. Number of Set Up Beds                              | 309.8        | 225.1         | 237.1          | 222.6          | 273.7          | 220.7        |
| Avg. Occupancy Rate                                     | 75.7%        | 62.5%         | 63.3%          | 63.2%          | 68.8%          | 72.1%        |
| Avg. Number of Admission per Year                       | 10,812       | 6,343         | 8,943          | 7,369          | 9,065          | 6,688        |
| Avg. Age of the Primary Structure                       | 2.5          | 10.8          | 21.3           | 30.2           | 40.9           | 61.0         |
| Privately Owned   | 40.0%        | 81.3%         | 84.8%          | 72.1%          | 73.5%          | 47.6%        |
| Government Owned  | 60.0%        | 18.8%         | 15.2%          | 27.9%          | 26.5%          | 52.4%        |
| Federal   | 33.3%        | 6.3%          | 42.9%          | 41.7%          | 33.3%          | 63.6%        |
| State   | 50.0%        | 0.0%          | 28.6%          | 16.7%          | 22.2%          | 18.2%        |
| County  | 16.7%        | 6.3%          | 14.3%          | 41.7%          | 44.4%          | 18.2%        |
| City  | 0.0%         | 6.3%          | 14.3%          | 0.0%           | 0.0%           | 0.0%         |
| <b>Construction Plan for the Hospital</b>               |              |               |                |                |                |              |
| Construction Expenditures in 1995                       | \$18,035     | \$2,462       | \$3,651        | \$5,172        | \$5,752        | \$7,569      |
| New Construction  | 37.0%        | 37.2%         | 23.1%          | 35.7%          | 24.4%          | 20.0%        |
| Maintenance & Repair                                    | 31.0%        | 13.1%         | 17.3%          | 20.2%          | 11.7%          | 32.9%        |
| Renovation/Remodeling                                   | 32.0%        | 49.7%         | 57.3%          | 44.3%          | 63.9%          | 43.1%        |
| General nature of Construction                          |              |               |                |                |                |              |
| % Add Patient Room                                      | 12.4%        | 3.3%          | 12.3%          | 9.0%           | 14.4%          | 12.7%        |
| % Add Administration Space                              | 0.9%         | 9.0%          | 4.4%           | 3.5%           | 6.5%           | 6.3%         |
| % Add Support Space (lab, pharmacy, etc)                | 40.4%        | 28.3%         | 28.2%          | 23.4%          | 15.5%          | 14.7%        |
| % Add Operating Rooms                                   | 0.0%         | 4.0%          | 3.0%           | 4.7%           | 3.2%           | 1.7%         |
| % Add Alzheimer's Ward                                  | 0.0%         | 1.3%          | 0.2%           | 0.0%           | 0.0%           | 1.7%         |
| % Add Psychiatric Ward                                  | 11.9%        | 0.7%          | 3.1%           | 1.3%           | 4.2%           | 1.7%         |
| % Others  | 34.5%        | 53.3%         | 48.8%          | 54.6%          | 52.6%          | 61.2%        |
| Construction by In-House Personnel                      | \$192        | \$219         | \$204          | \$434          | \$812          | \$1,066      |
|   | (43.4%)      | (17.4%)       | (14.1%)        | (10.5%)        | (17.7%)        | (18.6%)      |
| Construction Expenditures projected for 1996            | \$17,860     | \$2,585       | \$4,085        | \$3,656        | \$7,602        | \$9,303      |
| New Construction  | 14.4%        | 30.4%         | 18.4%          | 23.5%          | 33.8%          | 31.9%        |
| Maintenance & Repair                                    | 24.4%        | 28.2%         | 21.2%          | 25.2%          | 19.0%          | 30.7%        |
| Renovation/Remodeling                                   | 61.1%        | 41.4%         | 62.5%          | 51.3%          | 47.3%          | 36.7%        |
| Construction Expenditures projected for 1997            | \$2,525      | \$10,718      | \$3,546        | \$5,220        | \$7,957        | \$5,575      |
| New Construction  | 16.1%        | 43.3%         | 24.8%          | 31.9%          | 32.5%          | 38.0%        |
| Maintenance & Repair                                    | 40.0%        | 16.4%         | 20.2%          | 23.5%          | 15.5%          | 20.5%        |
| Renovation/Remodeling                                   | 43.9%        | 37.1%         | 55.5%          | 44.4%          | 52.0%          | 40.5%        |
| Construction Budget for the Next Five Years (1997-2001) |              |               |                |                |                |              |
| Remain Roughly the Same                                 | 30.0%        | 25.0%         | 28.3%          | 20.9%          | 26.5%          | 28.6%        |
| Increase Slightly                                       | 10.0%        | 6.3%          | 10.9%          | 11.6%          | 14.7%          | 14.3%        |
| Increase Significantly                                  | 20.0%        | 37.5%         | 23.9%          | 32.6%          | 20.6%          | 14.3%        |
| Decrease Slightly                                       | 20.0%        | 12.5%         | 19.6%          | 16.3%          | 17.6%          | 28.6%        |
| Decrease Significantly                                  | 20.0%        | 18.8%         | 19.6%          | 20.9%          | 17.6%          | 9.5%         |
| % of Construction that is Government Funded             | 50.0%        | 13.6%         | 13.8%          | 12.0%          | 20.0%          | 40.7%        |

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 7 (Continued)**  
**Variable Impacted by Age of Structure**

| <b>Age of Primary Structure</b>   | <b>0-5**</b> | <b>5-15**</b> | <b>15-25**</b> | <b>25-35**</b> | <b>35-45**</b> | <b>45+**</b> |
|---|--------------|---------------|----------------|----------------|----------------|--------------|
| <b>Information on Maintenance</b>   |              |               |                |                |                |              |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area |              |               |                |                |                |              |
| Exterior Walls  | 8.5          | 5.7           | 7.3            | 7.5            | 8.2            | 8.7          |
| Interior Walls  | 4.0          | 7.5           | 5.8            | 6.9            | 5.0            | 8.3          |
| Security  | 3.7          | 8.8           | 8.3            | 6.5            | 8.3            | 8.9          |
| Flooring  | 5.7          | 5.7           | 5.3            | 5.5            | 5.6            | 7.5          |
| Electrical  | 3.8          | 5.4           | 6.2            | 4.9            | 4.6            | 4.9          |
| Roof  | 4.2          | 3.5           | 4.4            | 3.9            | 3.2            | 4.2          |
| Structure   | 8.8          | 4.5           | 10.2           | 10.2           | 9.9            | 9.5          |
| Windows   | 7.3          | 7.4           | 7.0            | 6.8            | 7.0            | 7.4          |
| Handicap Accessibility  | 7.3          | 4.6           | 7.1            | 6.4            | 7.1            | 8.3          |
| Mechanical (HVAC)   | 2.7          | 2.6           | 2.8            | 2.3            | 1.7            | 2.3          |
| Plumbing  | 3.1          | 4.3           | 4.6            | 5.0            | 4.0            | 2.7          |
| Lighting  | 6.5          | 5.0           | 7.1            | 6.1            | 6.0            | 6.9          |
| Conveyance (elevator)   | 11.0         | 6.8           | 6.8            | 6.9            | 6.0            | 5.6          |
| Others  | *5.5         | *4.0          | *4.5           | *7.5           | *3.3           | *9.0         |
| Cause of Significant maintenance and Repair C                                     |              |               |                |                |                |              |
| Federal, State, Local Laws  | 2.2          | 3.2           | 3.4            | 3.7            | 3.4            | 4.3          |
| Materials (accelerated deterioration)   | 5.5          | 3.0           | 4.7            | 5.0            | 4.7            | 4.6          |
| Construction (poor workmanship)   | 4.2          | 3.1           | 5.4            | 5.2            | 5.6            | 5.3          |
| Normal Wear and Tear  | 4.0          | 2.0           | 3.2            | 3.1            | 2.5            | 3.1          |
| Aging of Facility   | 1.6          | 2.0           | 2.0            | 1.7            | 1.6            | 1.3          |
| Poor Design   | 2.2          | 2.8           | 3.8            | 4.2            | 3.3            | 4.5          |
| Technology Replacement  | 2.8          | 2.9           | 3.2            | 2.9            | 3.0            | 2.8          |
| Others  | *0.0         | *0.0          | *3.0           | *6.3           | *8.0           | *8.0         |
| <b>Information on Construction Contracts</b>                                      |              |               |                |                |                |              |
| # Construction Contracts to be awarded, 1997                                      | 7.0          | 14.1          | 7.3            | 8.3            | 9.8            | 11.4         |
| Type of Construction Contracts Awarded  | 79.0%        | 86.1%         | 75.1%          | 80.4%          | 68.9%          | 84.8%        |
| % Lump Sum (fixed price)  | 13.5%        | 10.4%         | 13.5%          | 13.8%          | 23.2%          | 15.0%        |
| % Cost Plus   | 7.5%         | 3.6%          | 11.7%          | 5.9%           | 7.6%           | 0.2%         |
| % Others  |              |               |                |                |                |              |
| % of Contracts that are competitively Bid   | 91.4%        | 80.2%         | 80.6%          | 77.5%          | 83.0%          | 90.0%        |
| Invitation for Bidding  |              |               |                |                |                |              |
| Open to All Contractors   | 70.0%        | 31.3%         | 17.4%          | 32.6%          | 26.5%          | 52.4%        |
| Restricted to Selected Firms on bidders list                                      | 30.0%        | 56.3%         | 71.7%          | 60.5%          | 70.6%          | 47.6%        |
| Negotiation   | 10.0%        | 12.5%         | 10.9%          | 7.0%           | 5.9%           | 9.5%         |
| Others  | 0.0%         | 0.0%          | 0.0%           | 2.3%           | 5.9%           | 9.5%         |
| Distribution of Contracts   |              |               |                |                |                |              |
| % General Contractor  | 73.6%        | 62.7%         | 64.4%          | 54.0%          | 51.6%          | 67.3%        |
| % Subcontractors (specialty contractors)  | 13.6%        | 18.5%         | 17.2%          | 26.1%          | 24.8%          | 19.1%        |
| % Design Build  | 12.9%        | 2.8%          | 5.1%           | 14.8%          | 4.2%           | 2.9%         |
| % Professional Construction Mgmt (CM)   | 0.0%         | 5.0%          | 12.6%          | 4.3%           | 21.9%          | 10.2%        |
| % Others  | 0.0%         | 0.0%          | 0.1%           | 1.8%           | 0.0%           | 0.8%         |

\* not an accurate representation due to either very limited number of or no respondent

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 8**  
**Variable Impacted by Occupancy Rate**

| % Occupancy Rate  | 50-**   | 50-65** | 65-80** | 80-95**  | 95+**   |
|---|---------|---------|---------|----------|---------|
| Number of Hospitals                                     | 20      | 46      | 51      | 31       | 9       |
| <b>Information about Hospital</b>                       |         |         |         |          |         |
| Avg. Number of Licensed Beds                            | 206.6   | 256.0   | 343.4   | 348.4    | 285.4   |
| Avg. Number of Set Up Beds                              | 143.7   | 201.5   | 285.6   | 277.4    | 223.8   |
| Avg. Occupancy Rate                                     | 37.2%   | 55.5%   | 70.8%   | 84.8%    | 97.2%   |
| Avg. Number of Admission per Year                       | 4,800   | 8,842   | 10,823  | 6,032    | 5,670   |
| Avg. Age of the Primary Structure                       | 32.8    | 25.4    | 31.3    | 29.4     | 48.4    |
| Privately Owned   | 75.0%   | 76.1%   | 72.5%   | 64.5%    | 55.6%   |
| Government Owned  | 25.0%   | 23.9%   | 27.5%   | 35.5%    | 44.4%   |
| Federal   | 20.0%   | 36.4%   | 64.3%   | 45.5%    | 0.0%    |
| State   | 0.0%    | 9.1%    | 21.4%   | 45.5%    | 75.0%   |
| County  | 60.0%   | 45.5%   | 14.3%   | 9.1%     | 25.0%   |
| City  | 20.0%   | 9.1%    | 0.0%    | 0.0%     | 0.0%    |
| <b>Construction Plan for the Hospital</b>               |         |         |         |          |         |
| Construction Expenditures in 1995                       | \$1,863 | \$4,939 | \$5,276 | \$7,420  | \$8,758 |
| New Construction  | 22.2%   | 37.0%   | 27.7%   | 21.6%    | 24.5%   |
| Maintenance & Repair                                    | 25.0%   | 16.1%   | 14.6%   | 25.2%    | 23.9%   |
| Renovation/Remodeling                                   | 48.4%   | 44.8%   | 57.5%   | 53.0%    | 51.6%   |
| General nature of Construction                          |         |         |         |          |         |
| % Add Patient Room                                      | 3.6%    | 15.4%   | 10.7%   | 13.7%    | 5.7%    |
| % Add Administration Space                              | 0.0%    | 2.9%    | 7.6%    | 6.7%     | 2.9%    |
| % Add Support Space (lab, pharmacy, etc)                | 16.8%   | 32.6%   | 20.3%   | 19.4%    | 15.7%   |
| % Add Operating Rooms                                   | 1.8%    | 2.8%    | 5.1%    | 1.7%     | 0.0%    |
| % Add Alzheimer's Ward                                  | 1.4%    | 0.0%    | 0.2%    | 0.0%     | 4.3%    |
| % Add Psychiatric Ward                                  | 1.8%    | 0.4%    | 1.9%    | 6.3%     | 13.6%   |
| % Others  | 68.6%   | 44.0%   | 53.1%   | 52.3%    | 57.9%   |
| Construction by In-House Personnel                      | \$133   | \$226   | \$709   | \$604    | \$481   |
|   | (10.8%) | (17.4%) | (16.1%) | (22.2%)  | (15.9%) |
| Construction Expenditures projected for 1996            | \$3,809 | \$3,937 | \$4,568 | \$10,583 | \$5,678 |
| New Construction  | 16.4%   | 29.4%   | 27.0%   | 23.7%    | 17.8%   |
| Maintenance & Repair                                    | 35.4%   | 20.8%   | 20.1%   | 27.5%    | 23.7%   |
| Renovation/Remodeling                                   | 47.3%   | 51.8%   | 52.9%   | 48.8%    | 58.6%   |
| Construction Expenditures projected for 1997            | \$3,217 | \$6,329 | \$5,649 | \$5,922  | \$3,914 |
| New Construction  | 25.4%   | 42.7%   | 30.3%   | 24.4%    | 12.5%   |
| Maintenance & Repair                                    | 21.2%   | 16.8%   | 18.9%   | 27.8%    | 27.5%   |
| Renovation/Remodeling                                   | 51.1%   | 40.2%   | 50.7%   | 47.7%    | 60.0%   |
| Construction Budget for the Next Five Years (1997-2001) |         |         |         |          |         |
| Remain Roughly the Same                                 | 15.0%   | 23.9%   | 25.5%   | 38.7%    | 44.4%   |
| Increase Slightly                                       | 10.0%   | 13.0%   | 9.8%    | 3.2%     | 44.4%   |
| Increase Significantly                                  | 30.0%   | 28.3%   | 21.6%   | 19.4%    | 0.0%    |
| Decrease Slightly                                       | 15.0%   | 13.0%   | 21.6%   | 29.0%    | 11.1%   |
| Decrease Significantly                                  | 25.0%   | 21.7%   | 19.6%   | 16.1%    | 0.0%    |
| % of Construction that is Government Funded             | 5.8%    | 19.4%   | 17.4%   | 27.6%    | 45.6%   |

\$ in thousands

\*\*Category range includes the lower-end integer.

**Table 8 (Continued)**  
**Variable Impacted by Occupancy Rate**

| % Occupancy Rate  | 50-** | 50-65** | 65-80** | 80-95** | 95+** |
|---|-------|---------|---------|---------|-------|
| <b>Information on Maintenance</b>   |       |         |         |         |       |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area |       |         |         |         |       |
| Exterior Walls  | 8.2   | 8.7     | 7.3     | 5.9     | 8.2   |
| Interior Walls  | 5.0   | 5.6     | 6.6     | 6.8     | 8.5   |
| Security  | 7.4   | 7.3     | 8.4     | 6.9     | 6.3   |
| Flooring  | 5.4   | 4.6     | 6.8     | 6.8     | 5.6   |
| Electrical  | 6.2   | 5.2     | 5.2     | 4.5     | 5.0   |
| Roof  | 3.9   | 3.8     | 3.5     | 4.1     | 6.8   |
| Structure   | 10.5  | 9.4     | 9.9     | 10.7    | 7.5   |
| Windows   | 6.6   | 8.3     | 6.8     | 5.9     | 5.0   |
| Handicap Accessibility  | 7.9   | 7.0     | 6.8     | 7.0     | 5.2   |
| Mechanical (HVAC)   | 1.6   | 2.6     | 2.4     | 2.8     | 1.9   |
| Plumbing  | 4.6   | 3.5     | 4.1     | 4.8     | 3.9   |
| Lighting  | 6.8   | 6.3     | 6.7     | 6.5     | 6.7   |
| Conveyance (elevator)   | 6.3   | 8.0     | 5.4     | 6.6     | 7.8   |
| Others  | *1.0  | *8.3    | *4.0    | *4.0    | *2.0  |
| Cause of Significant maintenance and Repair Costs,                                |       |         |         |         |       |
| Federal, State, Local Laws  | 3.3   | 2.9     | 4.1     | 3.7     | 2.6   |
| Materials (accelerated deterioration)   | 4.4   | 5.0     | 4.7     | 4.7     | 4.0   |
| Construction (poor workmanship)   | 5.9   | 5.3     | 5.0     | 4.5     | 5.0   |
| Normal Wear and Tear  | 2.4   | 2.9     | 2.7     | 3.7     | 2.3   |
| Aging of Facility   | 1.9   | 1.5     | 1.9     | 1.6     | 1.7   |
| Poor Design   | 3.7   | 4.0     | 3.5     | 3.5     | 4.0   |
| Technology Replacement  | 2.6   | 3.1     | 3.2     | 3.3     | 3.0   |
| Others  | *0.0  | *8.0    | *8.0    | *4.5    | *8.0  |
| <b>Information on Construction Contracts</b>                                      |       |         |         |         |       |
| # Construction Contracts to be awarded, 1997                                      | 5.9   | 5.0     | 10.8    | 11.0    | 9.4   |
| Type of Construction Contracts Awarded  |       |         |         |         |       |
| % Lump Sum (fixed price)  | 80.7% | 74.9%   | 76.8%   | 78.8%   | 76.7% |
| % Cost Plus   | 13.3% | 16.0%   | 16.7%   | 16.2%   | 11.7% |
| % Others  | 5.9%  | 9.1%    | 6.4%    | 5.0%    | 11.7% |
| % of Contracts that are competitively Bid   | 94.8% | 83.6%   | 77.7%   | 83.6%   | 81.7% |
| Invitation for Bidding  |       |         |         |         |       |
| Open to All Contractors   | 35.0% | 30.4%   | 29.4%   | 35.5%   | 33.3% |
| Restricted to Selected Firms on bidders list                                      | 65.0% | 56.5%   | 66.7%   | 64.5%   | 44.4% |
| Negotiation   | 5.0%  | 8.7%    | 13.7%   | 6.5%    | 11.1% |
| Others  | 5.0%  | 0.0%    | 3.9%    | 0.0%    | 11.1% |
| Distribution of Contracts   |       |         |         |         |       |
| % General Contractor  | 55.6% | 61.0%   | 61.5%   | 54.8%   | 65.0% |
| % Subcontractors (specialty contractors)  | 15.5% | 22.2%   | 23.3%   | 23.7%   | 18.8% |
| % Design Build  | 11.4% | 5.7%    | 6.2%    | 4.3%    | 8.8%  |
| % Professional Construction Mgmt (CM)   | 16.9% | 11.4%   | 9.6%    | 12.2%   | 7.5%  |
| % Others  | 1.9%  | 0.9%    | 0.5%    | 0.0%    | 0.0%  |

\* not an accurate representation due to either very limited number of no respondent

\*\*Category range includes the lower-end integer.

**Table 9**  
**Difference between Public and Private Hospitals**

| <i>descriptor</i>                                       | <i>Public</i> | <i>Private</i> |
|---|---------------|----------------|
| Number of Hospitals                                     | 49            | 124            |
| <b>Information about Hospital</b>                       |               |                |
| Avg. Number of Licensed Beds                            | 339.9         | 298.2          |
| Avg. Number of Set Up Beds                              | 268.8         | 234.9          |
| Avg. Occupancy Rate                                     | 70.2%         | 64.8%          |
| Avg. Number of Admission per Year                       | 6,791         | 9,084          |
| Avg. Age of the Primary Structure                       | 34.2          | 28.7           |
| Privately Owned   | 0.0%          | 100.0%         |
| Government Owned  | 100.0%        | 0.0%           |
| Federal   | 42.9%         | 0.0%           |
| State   | 24.5%         | 0.0%           |
| County  | 28.6%         | 0.0%           |
| City  | 4.1%          | 0.0%           |
| <b>Construction Plan for the Hospital</b>               |               |                |
| Construction Expenditures in 1995                       | \$8,755       | \$4,392        |
| New Construction  | 35.9%         | 26.1%          |
| Maintenance & Repair                                    | 28.1%         | 15.2%          |
| Renovation/Remodeling                                   | 36.0%         | 57.0%          |
| General nature of Construction                          |               |                |
| % Add Patient Room                                      | 4.3%          | 13.4%          |
| % Add Administration Space                              | 6.9%          | 4.4%           |
| % Add Support Space (lab, pharmacy, etc)                | 20.1%         | 24.2%          |
| % Add Operating Rooms                                   | 1.9%          | 3.6%           |
| % Add Alzheimer's Ward                                  | 0.5%          | 0.4%           |
| % Add Psychiatric Ward                                  | 7.6%          | 1.2%           |
| % Others  | 58.7%         | 50.8%          |
| Construction by In-House Personnel                      | \$713         | \$400          |
|   | (19.1%)       | (15.4%)        |
| Construction Expenditures projected for 1996            | \$10,729      | \$4,077        |
| New Construction  | 24.9%         | 25.6%          |
| Maintenance & Repair                                    | 30.0%         | 20.7%          |
| Renovation/Remodeling                                   | 45.1%         | 54.3%          |
| Construction Expenditures projected for 1997            | \$6,736       | \$5,195        |
| New Construction  | 26.0%         | 32.8%          |
| Maintenance & Repair                                    | 32.8%         | 16.1%          |
| Renovation/Remodeling                                   | 40.5%         | 50.9%          |
| Construction Budget for the Next Five Years (1997-2001) |               |                |
| Remain Roughly the Same                                 | 26.5%         | 25.8%          |
| Increase Slightly                                       | 10.2%         | 12.1%          |
| Increase Significantly                                  | 18.4%         | 28.2%          |
| Decrease Slightly                                       | 18.4%         | 18.5%          |
| Decrease Significantly                                  | 28.6%         | 14.5%          |
| % of Construction that is Government Funded             | 48.7%         | 8.9%           |
| \$ in thousands   |               |                |

**Table 9 (Continued)**  
**Difference between Public and Private Hospitals**

| <i>descriptor</i>   | <i>Public</i> | <i>Private</i> |
|---|---------------|----------------|
| Number of Hospitals   | 49            | 124            |
| <b>Information on Maintenance</b>   |               |                |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |               |                |
| Exterior Walls  | 8.8           | 7.2            |
| Interior Walls  | 6.8           | 6.0            |
| Security  | 7.1           | 7.9            |
| Flooring  | 6.2           | 5.6            |
| Electrical  | 3.9           | 5.8            |
| Roof  | 4.2           | 3.7            |
| Structure   | 8.5           | 10.2           |
| Windows   | 7.3           | 6.9            |
| Handicap Accessibility  | 7.4           | 6.7            |
| Mechanical (HVAC)   | 2.4           | 2.4            |
| Plumbing  | 3.7           | 4.4            |
| Lighting  | 6.1           | 6.6            |
| Conveyance (elevator)   | 6.4           | 6.8            |
| Others  | 7.8           | 4.5            |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |               |                |
| Federal, State, Local Laws  | 3.9           | 3.4            |
| Materials (accelerated deterioration)   | 4.8           | 4.6            |
| Construction (poor workmanship)   | 5.0           | 5.1            |
| Normal Wear and Tear  | 3.0           | 2.9            |
| Aging of Facility   | 1.4           | 1.9            |
| Poor Design   | 3.9           | 3.7            |
| Technology Replacement  | 3.1           | 3.0            |
| Others  | 5.7           | 6.8            |
| <b>Information on Construction Contracts</b>  |               |                |
| # Construction Contracts to be awarded, 1997  | 10.6          | 8.5            |
| Type of Construction Contracts Awarded  |               |                |
| % Lump Sum (fixed price)  | 93.5%         | 70.8%          |
| % Cost Plus   | 5.6%          | 19.9%          |
| % Others  | 0.8%          | 9.3%           |
| % of Contracts that are competitively Bid   | 92.7%         | 77.5%          |
| Invitation for Bidding  |               |                |
| Open to All Contractors   | 79.6%         | 12.9%          |
| Restricted to Selected Firms on bidders list  | 14.3%         | 80.6%          |
| Negotiation   | 8.2%          | 9.7%           |
| Others  | 8.2%          | 0.8%           |
| Distribution of Contracts   |               |                |
| % General Contractor  | 79.3%         | 50.9%          |
| % Subcontractors (specialty contractors)  | 18.5%         | 23.1%          |
| % Design Build  | 1.9%          | 9.3%           |
| % Professional Construction Mgmt (CM)   | 0.2%          | 15.3%          |
| % Others  | 0.6%          | 0.6%           |

\$ in thousands

**Table 10**  
**Hospital Characteristics by Region**

| <b>Region Number</b>                                    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> |
|---|----------|----------|----------|----------|----------|----------|----------|
| Number of Hospitals                                     | 27       | 21       | 11       | 7        | 15       | 23       | 19       |
| <b>Information about Hospital</b>                       |          |          |          |          |          |          |          |
| Avg. Number of Licensed Beds                            | 298.4    | 289.1    | 340.2    | 304.7    | 326.7    | 384.5    | 322.5    |
| Avg. Number of Set Up Beds                              | 233.3    | 218.8    | 333.3    | 255.3    | 281.5    | 293.1    | 244.4    |
| Avg. Occupancy Rate                                     | 0.62     | 0.70     | 0.659    | 0.54833  | 0.7038   | 0.68978  | 0.77176  |
| Avg. Number of Admission per Year                       | 6,825    | 8,582    | 11,413   | 4,367    | 8,511    | 10,402   | 9,773    |
| Avg. Age of the Primary Structure                       | 26.6     | 38.9     | 36.7     | 24.1     | 20.6     | 33.7     | 33.9     |
| Privately Owned   | 74.1%    | 61.9%    | 63.6%    | 42.9%    | 73.3%    | 69.6%    | 89.5%    |
| Government Owned  | 25.9%    | 38.1%    | 36.4%    | 57.1%    | 26.7%    | 30.4%    | 10.5%    |
| Federal   | 42.9%    | 50.0%    | 50.0%    | 50.0%    | 25.0%    | 57.1%    | 50.0%    |
| State   | 0.0%     | 37.5%    | 50.0%    | 0.0%     | 25.0%    | 14.3%    | 50.0%    |
| County  | 57.1%    | 12.5%    | 0.0%     | 50.0%    | 50.0%    | 28.6%    | 0.0%     |
| City  | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     |
| <b>Construction Plan for the Hospital</b>               |          |          |          |          |          |          |          |
| Construction Expenditures in 1995                       | \$4,971  | \$4,437  | \$4,352  | \$3,593  | \$3,609  | \$11,609 | \$6,003  |
| New Construction  | 24.0%    | 30.3%    | 26.2%    | 39.3%    | 20.1%    | 40.4%    | 14.8%    |
| Maintenance & Repair                                    | 18.0%    | 15.1%    | 34.0%    | 24.3%    | 31.6%    | 18.1%    | 15.8%    |
| Renovation/Remodeling                                   | 57.7%    | 54.7%    | 30.7%    | 36.4%    | 48.2%    | 41.5%    | 69.4%    |
| General nature of Construction                          |          |          |          |          |          |          |          |
| % Add Patient Room                                      | 10.0%    | 5.5%     | 19.9%    | 0.0%     | 0.7%     | 10.4%    | 6.2%     |
| % Add Administration Space                              | 5.5%     | 6.6%     | 7.8%     | 5.0%     | 4.1%     | 6.8%     | 2.4%     |
| % Add Supprt Space(lab, pharmacy,etc)                   | 32.0%    | 15.3%    | 27.3%    | 25.0%    | 43.1%    | 16.8%    | 23.8%    |
| % Add Operating Rooms                                   | 3.2%     | 1.6%     | 3.0%     | 10.0%    | 4.6%     | 3.6%     | 3.8%     |
| % Add Alzheimer's Ward                                  | 0.9%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 2.4%     |
| % Add Psychiatric Ward                                  | 2.5%     | 4.7%     | 4.0%     | 5.0%     | 1.1%     | 2.5%     | 4.7%     |
| % Others  | 42.3%    | 66.3%    | 38.0%    | 55.0%    | 46.4%    | 55.6%    | 56.8%    |
| Construction by In-House Personnel                      | \$376    | \$228    | \$755    | \$332    | \$518    | \$1,167  | \$495    |
|   | (10.4%)  | (7.4%)   | (26.1%)  | (18.7%)  | (24.7%)  | (22.7%)  | (15.4%)  |
| Construction Expenditure projected for 1996             | \$6,384  | \$3,914  | \$4,023  | \$3,150  | \$4,056  | \$9,707  | \$4,918  |
| New Construction  | 20.4%    | 11.6%    | 29.7%    | 39.3%    | 8.8%     | 38.5%    | 23.6%    |
| Maintenance & Repair                                    | 24.0%    | 30.4%    | 30.4%    | 32.9%    | 35.0%    | 16.9%    | 24.1%    |
| Renovation/Remodeling                                   | 55.6%    | 58.0%    | 39.9%    | 27.9%    | 63.8%    | 44.6%    | 52.3%    |
| Construction Expenditure projected for 1997             | \$5,292  | \$2,958  | \$11,443 | \$15,043 | \$6,518  | \$7,009  | \$4,714  |
| New Construction  | 28.9%    | 16.3%    | 30.0%    | 62.1%    | 32.7%    | 40.8%    | 24.3%    |
| Maintenance & Repair                                    | 17.0%    | 32.8%    | 23.9%    | 14.3%    | 22.3%    | 15.4%    | 18.1%    |
| Renovation/Remodeling                                   | 52.7%    | 51.0%    | 46.0%    | 23.6%    | 44.3%    | 43.8%    | 58.5%    |
| Construction Budget for the Next Five Years (1997-2001) |          |          |          |          |          |          |          |
| Remain Roughly the Same                                 | 26.9%    | 38.1%    | 27.3%    | 0.0%     | 13.3%    | 21.7%    | 31.6%    |
| Increase Slightly                                       | 7.7%     | 14.3%    | 9.1%     | 14.3%    | 13.3%    | 13.0%    | 10.5%    |
| Increase Significantly                                  | 26.9%    | 14.3%    | 63.6%    | 42.9%    | 40.0%    | 21.7%    | 26.3%    |
| Decrease Slightly                                       | 19.2%    | 19.0%    | 0.0%     | 0.0%     | 26.7%    | 26.1%    | 5.3%     |
| Decrease Significantly                                  | 19.2%    | 14.3%    | 0.0%     | 42.9%    | 6.7%     | 17.4%    | 26.3%    |
| % of Construction that is Govmnt Funded                 | 17.1%    | 29.5%    | 47.5%    | 28.6%    | 12.9%    | 20.9%    | 31.8%    |

\$ in thousands

**Table 10 (Continued)**  
**Hospital Characteristics by Region**

| <b>Region Number</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> |
|---|----------|----------|----------|----------|----------|----------|----------|
| <b>Information on Maintenance</b>   |          |          |          |          |          |          |          |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |          |          |          |          |          |          |          |
| Exterior Walls  | 8.8      | 8.8      | 10.5     | 8.2      | 4.2      | 6.3      | 7.1      |
| Interior Walls  | 6.2      | 5.9      | 8.4      | 4.5      | 5.4      | 6.0      | 7.4      |
| Security  | 5.9      | 5.6      | 9.8      | 10.8     | 7.4      | 7.4      | 9.8      |
| Flooring  | 5.7      | 5.8      | 5.4      | 5.0      | 6.2      | 5.5      | 7.1      |
| Electrical  | 5.8      | 5.8      | 2.8      | 5.3      | 5.6      | 5.0      | 4.9      |
| Roof  | 2.5      | 5.5      | 4.6      | 4.9      | 3.2      | 4.6      | 4.4      |
| Structure   | 9.3      | 12.1     | 9.2      | 7.7      | 10.0     | 10.5     | 10.3     |
| Windows   | 9.1      | 7.1      | 7.7      | 8.8      | 6.0      | 7.3      | 6.1      |
| Handicap Accessibility  | 6.7      | 6.2      | 8.9      | 5.8      | 7.3      | 6.6      | 7.7      |
| Mechanical (HVAC)   | 2.8      | 1.5      | 1.6      | 2.1      | 2.5      | 2.5      | 2.8      |
| Plumbing  | 4.5      | 4.9      | 2.8      | 3.8      | 4.8      | 4.1      | 5.2      |
| Lighting  | 5.9      | 5.1      | 6.8      | 5.7      | 8.0      | 5.6      | 7.7      |
| Conveyance (elevator)   | 6.9      | 6.2      | 6.4      | 7.3      | 5.8      | 7.1      | 6.8      |
| Others  | *14.0    | *3.3     | *9.0     | *0.0     | *2.0     | *11.5    | *1.5     |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |          |          |          |          |          |          |          |
| Federal, State, Local Laws  | 2.9      | 3.4      | 4.2      | 3.7      | 2.9      | 3.5      | 4.8      |
| Materials (accelerated deterioration)   | 4.4      | 4.6      | 5.0      | 5.3      | 5.1      | 4.9      | 4.6      |
| Construction (poor workmanship)   | 5.3      | 5.5      | 5.0      | 3.8      | 5.0      | 5.4      | 5.0      |
| Normal Wear and Tear  | 2.9      | 2.7      | 3.0      | 3.0      | 3.2      | 3.2      | 2.8      |
| Aging of Facility   | 1.9      | 2.1      | 1.5      | 1.6      | 1.8      | 1.7      | 2.1      |
| Poor Design   | 4.6      | 3.2      | 4.3      | 3.3      | 3.8      | 4.2      | 3.7      |
| Technology Replacement  | 3.3      | 2.9      | 3.2      | 3.0      | 2.8      | 2.6      | 3.4      |
| Others  | *8.0     | *0.0     | *8.0     | *0.0     | *0.0     | *3.0     | *8.0     |
| <b>Information on Construction Contracts</b>  |          |          |          |          |          |          |          |
| # of Constr. Contracts to be awarded, 1997  | 13.0     | 9.6      | 10.2     | 12.3     | 9.9      | 15.0     | 6.1      |
| Type of Construction Contracts Awarded  |          |          |          |          |          |          |          |
| % Lump Sum (fixed price)  | 77.9%    | 79.3%    | 70.5%    | 84.3%    | 79.3%    | 64.8%    | 83.2%    |
| % Cost Plus   | 15.5%    | 16.0%    | 12.7%    | 15.7%    | 13.7%    | 19.8%    | 8.4%     |
| % Others  | 6.1%     | 5.0%     | 16.8%    | 0.0%     | 7.0%     | 15.4%    | 8.4%     |
| % of Contracts that are competitively bid   | 76.7%    | 86.5%    | 87.7%    | 90.0%    | 89.3%    | 75.7%    | 92.5%    |
| Invitation for Bidding  |          |          |          |          |          |          |          |
| Open to All Contractors   | 33.3%    | 23.8%    | 36.4%    | 28.6%    | 40.0%    | 39.1%    | 21.1%    |
| Restricted to Select Firms on bidders list  | 63.0%    | 76.2%    | 54.5%    | 42.9%    | 60.0%    | 52.2%    | 73.7%    |
| Negotiation   | 7.4%     | 9.5%     | 9.1%     | 28.6%    | 0.0%     | 8.7%     | 5.3%     |
| Others  | 0.0%     | 0.0%     | 0.0%     | 28.6%    | 0.0%     | 4.3%     | 10.5%    |
| Distribution of Contracts   |          |          |          |          |          |          |          |
| % General Contractor  | 57.5%    | 61.5%    | 34.0%    | 76.7%    | 53.8%    | 45.7%    | 52.7%    |
| % Subcontractors (specialty contractors)  | 27.3%    | 23.8%    | 38.1%    | 10.8%    | 18.3%    | 31.1%    | 12.4%    |
| % Design Build  | 7.3%     | 5.6%     | 0.5%     | 12.5%    | 21.3%    | 6.6%     | 4.7%     |
| % Professional Construction Mgmt (CM)   | 6.8%     | 10.3%    | 24.9%    | 0.0%     | 6.7%     | 14.6%    | 30.2%    |
| % Others  | 1.4%     | 0.0%     | 0.4%     | 0.0%     | 0.0%     | 2.0%     | 0.0%     |

\* not an accurate representation due to either very limited number of or no respondent

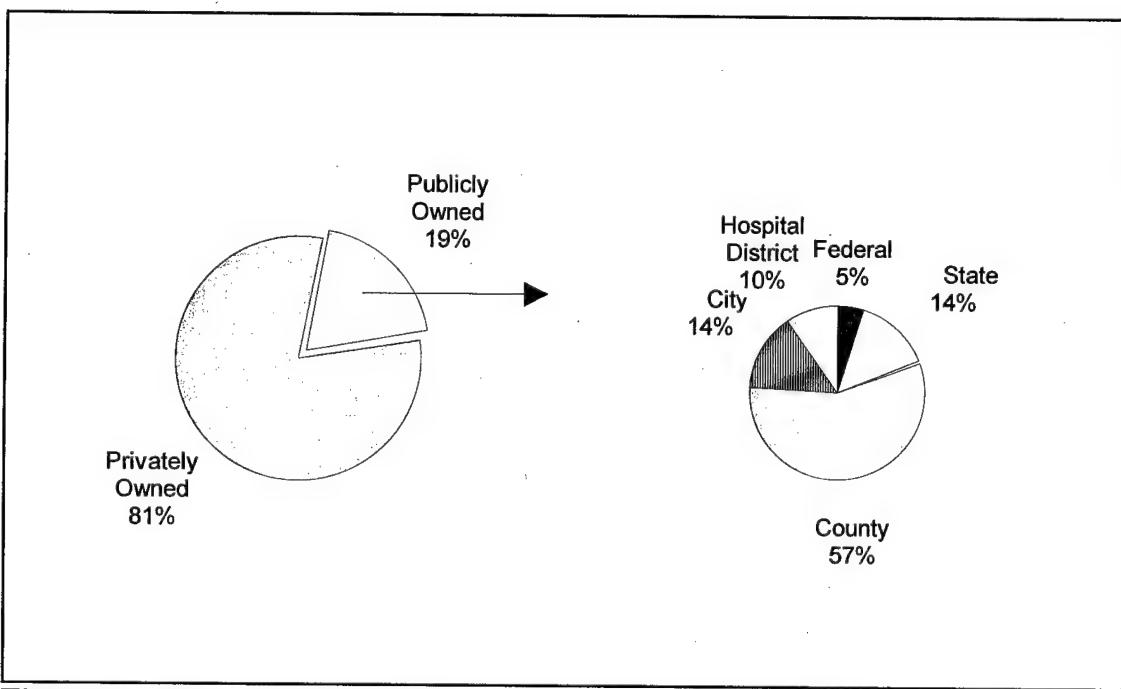
\$ in thousands

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## ***Construction and Maintenance Activities, Needs, and Procurement Policies of Long Term Care Facilities***

### **DESCRIPTION OF RESPONDENTS**

A total of 110 responses were received from long-term health care facilities throughout the United States. These respondents represented facilities with an average of 195 skilled nursing beds, 69 intermediate care beds, 55 boarding house (assisted living) beds, 121 independent living unit beds, and 21 "other beds". Some examples of "other beds" are developmental disability home/apartment, acute care, adult day care, short term rehabilitation care, cottage, intensive care unit, etc. The average occupancy rate was 94.8% with an average of 199 admissions per year. The average age of the primary health care facilities was 26 years. Approximately 19% of the responding long-term care facilities were publicly-owned, of which 5%, 14%, 57%, 14%, and 10% are owned by federal, state, county, city, and hospital district agencies, respectively (Figure 10). See Table 11 for further details.



**Figure 10: Breakdown of Private and Publicly-Owned Facilities**

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## **CONSTRUCTION ACTIVITIES**

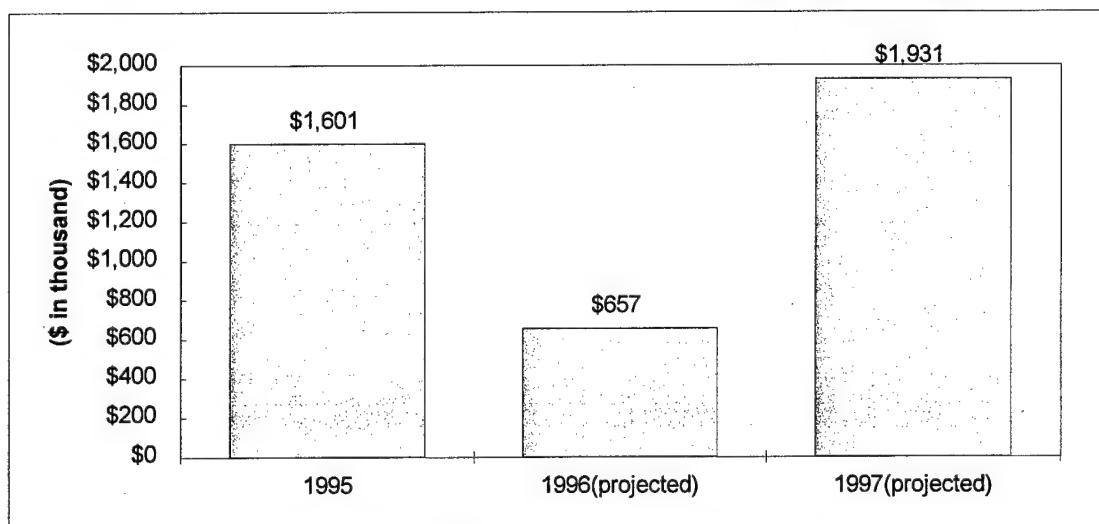
Table 12 contains and Figure 11 depicts construction expenditure figures for 1995, 1996, and 1997. The average expenditure on construction during 1995 was \$1.6 million. Of this amount, 20% was allocated to new construction, 38% was spent on maintenance and repairs, and 43% was spent on renovation.

In response to the question of general nature of construction, the support space (dining facility, lounge, activities room, etc.) accounted for 19%, followed by the addition of rooms for residents at 13%, updating to meet building (fire) codes at 12%, and administrative space at 6.2% (Figure 12). The majority of the respondents (46%), however, indicated that these funds were spent in "other" areas, which included renovation/remodeling (20 respondents), followed by facelift (4 respondents), new buildings (4 respondents), general upkeep (3 respondents), HVAC system upgrade (2 respondents), and facility modernization (2 respondents). Some other examples of "other" areas mentioned were parking, sidewalk, utility, interior finish, new court yard, housing, and common area improvement.

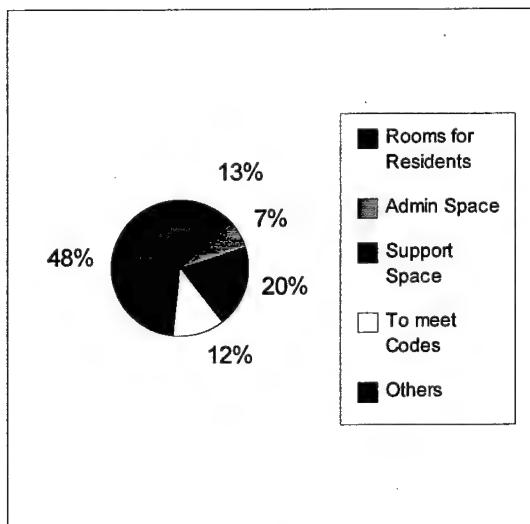
The survey indicated only 18.4% (an average of \$96,000) of the construction work (not including maintenance and repairs) was performed by in-house personnel in 1995.

Respondents projected they will spend an average of \$657,000 in 1996 (22% for new construction, 43% for maintenance/repairs, and 35% for renovation) and \$1,931,000 in 1997 (29% for new construction, 31% for maintenance/repairs, and 40% for renovation). In projecting construction budgets for the next five years (1997-2001), Figure 13 shows 24%, 14%, 28%, 27%, and 8% of respondents respectively marked "Increase Significantly", "Increase Slightly", "Remain Roughly the Same", "Decrease Slightly", and "Decrease Significantly". Approximately 26% of all construction funds are received from government sources such as direct appropriations, tax supported bonds, etc. See Table 12 for further details.

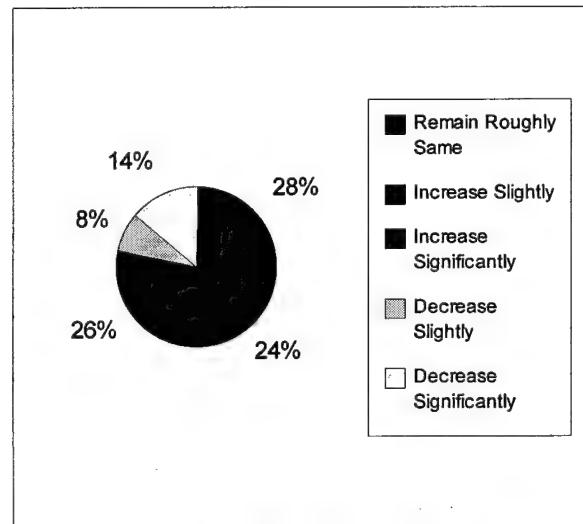
There is a notable drop in expenditures for 1996 (\$657,000) compared to 1995 (\$1,601,000) and 1997 (\$1,931,000). According to the 1989 survey, long term care facilities spent an average of \$265,000 per year for the periods of 1984 through 1988, \$442,000 for the year 1989, and \$360,000 per year for the periods of 1990 - 1994. In conclusion, construction expenditures for long term care facilities appears to be fluctuating year to year without a clear pattern.



**Figure 11: Construction Expenditures from 1995-1997**



**Figure 12: General Nature of Construction**



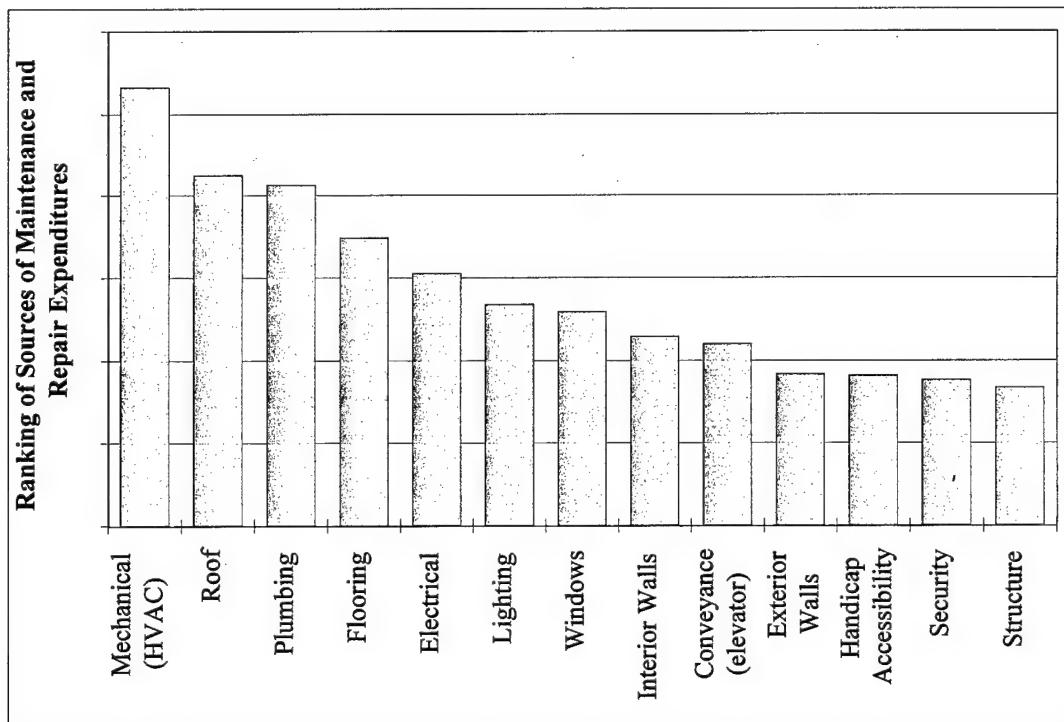
**Figure 13: Construction Budget Trends for Next 5 years (1997-2001)**

## MAINTENANCE ACTIVITIES

A series of questions were asked about the maintenance aspects of the facility (see Table 13). In response to the question of what the sources of major maintenance and repair costs were, mechanical (HVAC) system was ranked the highest (greatest expenditure), followed by roof, plumbing, flooring, electrical, "others", lighting, windows, interior

walls, conveyance (elevator), exterior walls, handicap accessibility, security, and structure.

Figure 14 shows the ranking by expenditures among different areas of the facility. A total of nine respondents marked "others" (not shown) for this question. Examples of "others" were general maintenance, parking, landscaping, boiler replacement, retaining walls, etc. It is notable that the order of the worst problem areas as the source of major maintenance and repair costs was almost the same as it was for the hospital facilities.

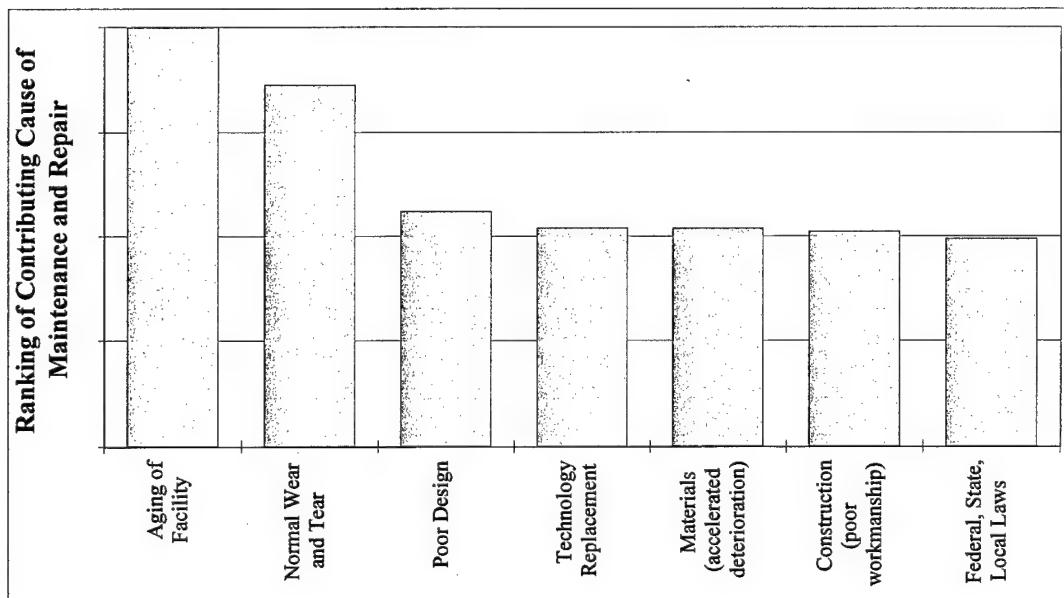


**Figure 14: Relative Expenditures on Major Maintenance and Repair** (Actual figures from Table 13 were adjusted by taking the inverse of a modified scale, 1-10, for a better visual representation of the ranking of expenditures)

A total of 50 participants responded to a question of what change would be made if any particular system or component were to be replaced based on the past problems. Concerns over HVAC system were expressed by 22 respondents. Desires were for larger capacity of the system, conversion to more sophisticated controls such as DDC (Direct Digital Control) system, more efficient system, and natural gas run air conditioning and heating systems. Roofing systems were a concern for eight respondents. However, no

clear conclusion could be drawn on which roof system was preferred by the respondents. Four respondents wanted to replace their windows with more energy efficient ones. Four respondents also stated that they would want to change their lighting system and kitchen/laundry equipment with more energy efficient ones. Some other examples of the changes they would like to make were better security (key) systems, modernized elevators, and better layout of nursing stations.

To the question of what the cause of significant maintenance and repair costs were, as shown in Figure 15, aging of facility was ranked the highest (most contributing cause), followed by normal wear and tear, poor design, technology replacement, materials (accelerated deterioration), construction (poor workmanship), federal, state, and local laws, and "others". A total of three respondents marked "others" as a part of major maintenance and repair costs. Examples of the "others" were poor mechanical design, change in usage, and water treatment. Again, it is notable that the order of the worst problem areas as the cause of the maintenance and repair costs was almost the same as it was for the hospital facilities.



**Figure 15: Relative Contributing Cause for Major Maintenance and Repair** (Actual figures from Table 13 were adjusted by taking the inverse of a modified scale, 1-10, for a better visual representation of the ranking of contributing cause)

## CONTRACTING PROCEDURES

A series of questions were asked about the awarding of construction contracts (see Table 14). An average of 3.5 construction contracts were expected to be awarded in 1997. Figure 16 shows that a majority (84%) of respondents use a lump sum (fixed price) contracting method, while 13% of them use a cost plus method. Approximately 3.5% responded that they used other methods. Examples of the other methods were GMP (guaranteed maximum price) (4 respondents) and time and materials (1 respondent). Most construction contracts (86%) are competitively bid. For these competitively bid contracts, only 42 % of them are "open to all contractors", 44% are "restricted to selected firms on bidders list", 10% are based on "negotiations", and 4% are "others". Examples of "others" include bids from three contractors, and open based on competitive market conditions.

To the question of how the cost of construction contracts were distributed among different contractors in monetary terms, 63% was awarded to general contractors, followed by subcontractors (specialty contractors) (21%), professional construction management (CM) (8%), design build (9%), and "others" (0.1%). Examples of "others" included architect/engineering design and furniture and equipment purchasing.

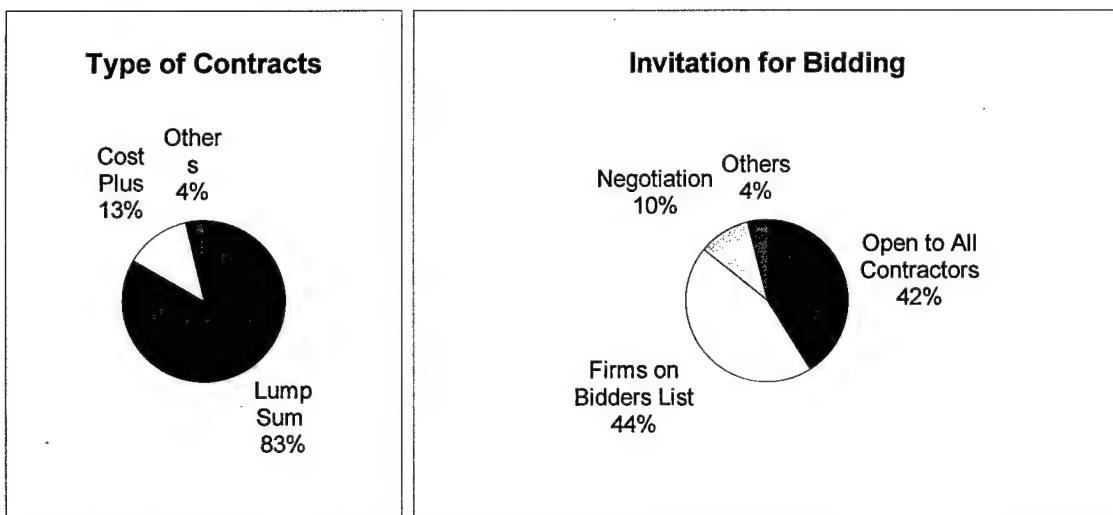


Figure 16: Breakdown of Contracting Methods

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## **ANALYSIS BY FACILITY CHARACTERISTIC**

The survey results were analyzed to see how the construction budgets, contracting procedures, facility maintenance, and other facility related matters were influenced by different variables such as the size of facility, percentage of skilled nursing beds, age of facility, occupancy rate, public vs private facilities, and regional differences.

### **Size of Facility**

Responding hospitals were grouped into four different size categories (see Table 15). As one might expect, the total budgets of the facilities and number of construction contracts to be awarded generally increased with the size of the long term care facility (total number of set-up beds). The larger long term care facilities also had generally slightly higher occupancy rates. Another variable noted to be related to the size of facilities was the ownership of long term care facilities. Larger facilities generally had a higher percentage of government ownership compared to smaller ones, although the overall average percentage of government ownership regardless of the size of facility was only 19.4%, which was considerably lower than that of hospitals (28.3%).

Many variables, however, did not reveal a discernible pattern in relation to the size of the long term care facility. Some of the examples of the variables that were not related to the size of long term care facilities were the allocation of the funds to new construction, renovation, and maintenance, the nature of expenditures in terms of adding different spaces, the percentage of construction work performed by in-house personnel, and problem areas for major maintenance or repair. This was also true for the type of construction contracts awarded (lump sum or cost plus), percentage of competitively bid contracts, bidding process, and distribution of construction contracts (general, subcontract, design build, or professional CM).

### **Skilled Nursing Facilities**

Responding long term care facilities were grouped into five different categories on the basis of the percentage of skilled nursing beds to overall set-up beds. About 40% of (42 of 105) respondents accounted for the percentage skilled nursing beds of 100% (see Table 16). It must be noted that a higher percentage of skilled nursing beds implies that more residents at the facilities have access to greater individualized health care services and that those facilities with skilled nursing beds have in-house capabilities to care for residents who might otherwise be hospitalized. Although the percentage of skilled

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nursing beds was considered as a parameter that might influence the amount of expenditures, no clear patterns were observed from the survey results.

### **Facility Age**

The results were analyzed by grouping facilities into five different age categories and the tabulated results are shown in Table 17. The older facilities generally tend to be larger (more set-up beds and skilled nursing beds) according to the survey results. An interesting result occurred for the first age category, less than five years of age, in terms of government versus private ownership. All eight facilities in the less than five years old category were privately owned. While this number is too small to make solid conclusions, it may be indicative of a trend away from public ownership of such facilities. Such a trend, if real, would have definite implications on the construction contracting practices.

Unlike the 1989 survey results, wherein the different age group of facility structures showed a few distinctive trends in budgets, areas of funds expended, occupancy rates, etc., these survey results did not reveal much in the way of conclusive trends for the age of facilities in most of the variables examined.

### **Occupancy Rate**

The occupancy rates provide an indication of a facility's activity. In this analysis, the occupancy rates of long term care facilities were grouped into five different categories (see Table 18). The most dramatic change from 1989 survey in terms of occupancy rates is an increase (33%) in the average occupancy rate, from 71.3% to 94.8%. From this change, it can be concluded that more people are treated or serviced by long term care facilities today, compared to six to seven years ago. Another interesting trend was observed in the average number of admission per year. Facilities with the higher occupancy rates tend to have fewer admissions per year. Longer staying period per admission in the long term care facility naturally drives the occupancy rate up, but reduces number of admission due to lower turn-over rates. While it is not otherwise indicated by the respondents, this trend may result in more new construction down the road when existing capacities are exceeded by demand.

As it was for the hospitals, the occupancy rates were closely related to the construction expenditures in 1995. The construction expenditures increased as the occupancy rates increased. It was readily apparent that the higher occupancy rates necessitated more expenditures in construction. The construction expenditures in 1996 and 1997, however, show somewhat increasing trends although the patterns are not as distinctive as 1995.

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A clear pattern was developed in the construction work performed by in-house personnel. Facilities with the higher occupancy rates spent more utilizing their in-house personnel.

However, the proportion of in-house work compared to overall expenditures did not yield a certain pattern. In other words, in-house construction work efforts increased with the construction expenditures as well as with the occupancy rates. This trend also points to a potential opportunity for contractors to enter into long term construction service contracts.

### **Public versus Private Facilities**

Responding long term care facilities were grouped into two different categories, public and private. (see Table 19) Public facilities, which account for only 19% of all respondents, tend to be slightly larger and older facilities when compared to private facilities. It is also observed that the private long term care facilities offer more variety of services. For example, private facilities included boarding (assisted living) beds, independent living unit beds, and other types of beds, while public facilities had almost none of these types.

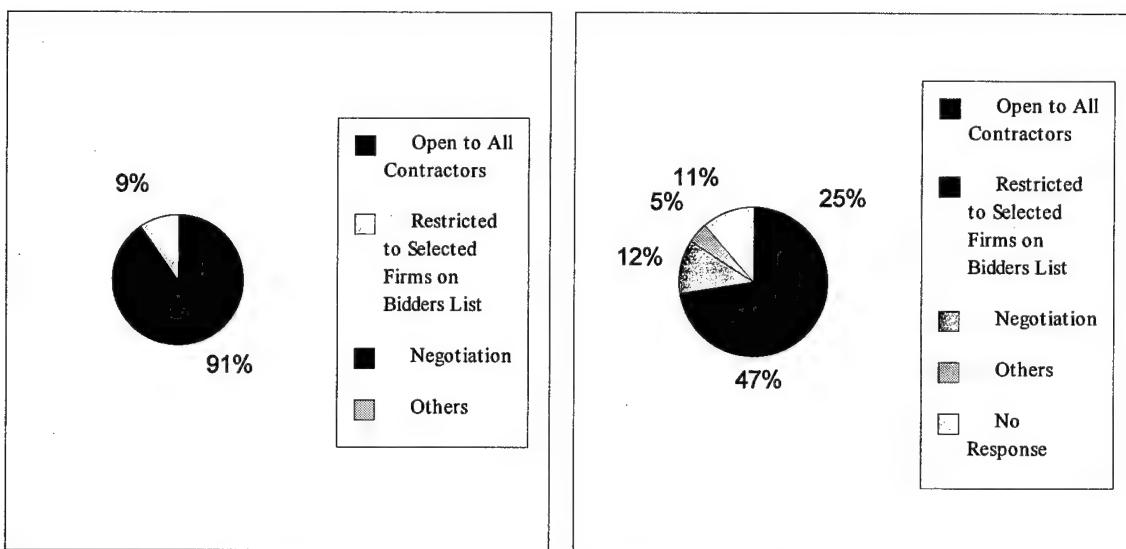
Construction expenditures and plans were examined for these two categories. No clear pattern was evident in construction expenditures. The private facilities compared to the public facilities spent almost four times and twice as much in overall construction in 1995 and expected to do so again in 1997. However, the private facilities expected to spend only half of what public facilities spent in 1996. When the facilities were compared in terms of the budgets for the next five years, a greater portion of private facilities responded that their budgets would be "Increase Significantly", while more of the public facilities responded that their budget would be likely to "Decrease Significantly".

The allocation of funds to new construction, maintenance/repairs, and renovation was examined for public and private hospitals. There was a discernible pattern in allocating construction funds. The public facilities allocated a higher percentage of funds in renovation and remodeling, while the private facilities allocated a higher percentage of funds in new construction. The survey results also revealed that there were no clear differences in the amount of construction work performed by in-house personnel.

Contracting practices were examined. For the type of contracts awarded, significant differences were noted between public and private facilities. A total of 97% of all contracts awarded for the public facilities was the lump sum type contract, compared to

80% for the private facilities. Only 3% of contracts awarded for the public facilities was the cost plus type contract, compared to 16% for the private facilities. Both private and public facilities utilize some other types of contract such as time and materials and guaranteed maximum price (GMP). As for the competition aspect of the contract bidding process, the public facilities, as would be expected, used competitively bid contracts for almost all (95%) of their construction contracts. The competitively bid contracts were also the dominant (84%) procedure for private facilities.

Figure 17 shows clear differences between public and private facilities on how contractors are invited to submit bids. Most public facilities (91%) responded "open to all public", while this was the case for only 28% of private facilities respondents. The majority of private facilities (52%) used a bidding process that was "restricted to selected firms on bidders list", while this was the case for only 10% of the public facilities.



**Figure 17: Breakdown of Bidding Methods between Public and Private Facilities**

To a question of how the cost of construction contracts are distributed, the public facilities awarded majority (76%) of their contracts to general contractors and 7% to the specialty contractors, while the private facilities awarded considerably less (58%) for general contractors and more (25%) for specialty subcontractors. Also notable facts were the public and the private facilities both used design build contracts as much as 15% and 8% of overall contract awards, respectively. The private facilities also used 10% of their overall contract awards for the professional construction management (CM) contracts, compared to 1.5% for the public facilities.

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However, public and private facilities do not appear to differ appreciably when compared on the basis of the source and required areas of major maintenance and repairs.

### **Regional Differences**

Long term care facilities responding to this study were grouped into the same seven different regions as for the hospital study (see Table 20 for details). The regional data of only 63 of 110 facilities was available to examine this category. Regions three, four, and five only had two, four, and one respondents, respectively. Although it was generally difficult to note clear and accurate patterns on most variables, readers might be able to obtain information for specific variables on the interested regions from the table provided.

## **CONSTRUCTION RELATED PROBLEMS**

One of the questions in the survey was "What is your top construction related problem?" A total of 53% (58 of 110) of respondents provided an answer to the question. The most frequently addressed problem was obtaining qualified contractors (7 respondents). Among other answers provided were: the timely completion of the projects (6 respondents); meeting state, safety code, and ADA (Americans with Disabilities Act) requirements (3 respondents); aging of facilities (5 respondents); interruption of the health care operation (4 respondents); high construction cost (2 respondents); poor, outdated, and incomplete design (5 respondents); and lack of funds (3 respondents).

Problems that were inherent to the long term care facilities included: HVAC system (7 respondents); roof replacement (3 respondents); asbestos removal; window replacement; electrical system; and lighting. Other problem mentioned were: lack of coordination between contractors; warranty and contract close-out; lack of quality CM (construction manager); material availability (2 respondents); and compliance with the contract documents.

Most of the items addressed above appear to be typical problems related to the construction of long term care facilities, as the similar problems had been addressed in the previous survey performed in 1989.

## **FUTURE TRENDS IMPACTING CONSTRUCTION**

The last question asked in the survey was "What trends relating to construction, if any, do you see impacting facility construction over the next 5- 10 years?" A total of 43% (47 of

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110) of respondents provided an answer to this question. The most frequently addressed future trend was the construction cost escalation (11 respondents) due to overly restrictive code requirements, ADA, increasing materials costs, etc. They predicted there will be more stringent new code requirements especially due to the ADA. Five respondents expected less funds available for the future. The government cutback in spending was one of the reasons provided. The formation of capital (2 respondents) was mentioned to cope with the funding shortage.

The change in service philosophy appeared to be evident. More emphasis is expected to be placed upon offering a more comfortable environment for the patient such as a private room setting, more common space in the facility, etc. Three respondents predicted more managed care and more government involvement in the future due to federal and state regulations. Changes in technology seemed to have some impact on construction. A total of four respondents said that new technology and materials will have a great impact on future facility design. Changes in contracting were also mentioned. Some examples of those mentioned are more design build contracts (2 respondents), emphasis on value engineering, and more partnering between the owner and contractor.

## **CONCLUSIONS**

Construction budgets for the long term care facility construction industry overall for the next five years is expected to remain at a steady level. When increasing construction costs are considered, it appears market opportunity for construction contractors for the long term health care industry is not as bright as it was in the past. However, a few pointers out of these survey results could be utilized in seeking future business opportunities.

There is a greater emphasis on maintenance and repairs; and renovation and remodeling over new construction due to several reasons such as change in operational philosophy, new technology accommodation, savings of funds, etc. Increased need for in-house construction capability could signal an opportunity for long term construction service contracts to be established.

High occupancy rate (average of 95%), although not explicitly addressed by the respondents, can be viewed as a potential new construction opportunity down the road when existing capacities are exceeded by demand and funds become available.

Contractors also must be aware of the different methods currently being used to award the construction contracts. As it always has been, the public hospitals will more likely have

bidding open to all interested parties, while private hospitals will use selected bidder's list more extensively. The public hospitals also will use the lump sum type contract extensively, while the private hospitals are expected to mix other types such as cost plus and guaranteed maximum price contracts with the lump sum type of contract. The survey results also suggest that more design build for fast tracking projects will be utilized in the future.

**Table 11**  
**General Description of Facilities\***

| <i>descriptor</i>                              | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|--|-------------|---------------|----------------|----------------|
| Number of Skilled Nursing Beds                 | 195         | 178           | 725            | 0              |
| Number of Intermediate Care Beds               | 69          | 60            | 292            | 0              |
| Number of Boarding House(assisted living) Beds | 55          | 46            | 248            | 0              |
| Number of Independent Living Unit Beds         | 121         | 84            | 482            | 0              |
| Number of Other Beds                           | 21          | 3             | 169            | 0              |
| Occupancy Rate                                 | 94.8%       | 97.0%         | 100.0%         | 70.0%          |
| Number of Admission per Year                   | 199         | 133           | 1600           | 8              |
| Age of the Primary Structure (Years)           | 26          | 25            | 92             | 1              |
| Government Owned                               | 19.4%       |               |                |                |
| Federal  | 4.8%        |               |                |                |
| State  | 14.3%       |               |                |                |
| County   | 57.1%       |               |                |                |
| City   | 14.3%       |               |                |                |
| Hospital District                              | 9.5%        |               |                |                |
| Privately Owned                                | 80.6%       |               |                |                |

\*110 respondents

**Table 12**  
**Expenditure on Construction, Maintenance and Repair\***

| <i>descriptor</i>  | <i>mean**</i> | <i>median**</i> | <i>maximum**</i> | <i>minimum**</i> |
|--|---------------|-----------------|------------------|------------------|
| Construction Expenditures in 1995                        | \$1,601       | \$200           | \$25,000         | \$0              |
| New Construction   | 19.7%         |                 |                  |                  |
| Maintenance & Repair                                     | 37.5%         |                 |                  |                  |
| Renovation/Remodeling                                    | 42.9%         |                 |                  |                  |
| General Nature of Construction                           |               |                 |                  |                  |
| % Add Rooms for Residents                                | 12.7%         |                 |                  |                  |
| % Add Administration Space                               | 6.2%          |                 |                  |                  |
| % Add Support Space(dining, lounge, activities r         | 18.9%         |                 |                  |                  |
| % Updating to meet Building(fire) Code                   | 11.5%         |                 |                  |                  |
| % Other  | 45.6%         |                 |                  |                  |
| Construction(excl. maint./repair) by In-House Person     | \$96          | \$11            | \$1,280          | \$0              |
| Construction(excl. maint./repair) by In-House Person     | 18.4%         | 5.0%            | 100.0%           | 0.0%             |
| Construction Expenditures projected for 1996             | \$657         | \$150           | \$14,500         | \$0              |
| New Construction   | 21.3%         | 0.0%            | 100.0%           | 0.0%             |
| Maintenance & Repair                                     | 42.6%         | 30.0%           | 100.0%           | 0.0%             |
| Renovation/Remodeling                                    | 34.8%         | 25.0%           | 100.0%           | 0.0%             |
| Construction Expenditures projected for 1997             | \$1,931       | \$300           | \$21,000         | \$0              |
| New Construction   | 28.6%         | 0.0%            | 100.0%           | 0.0%             |
| Maintenance & Repair                                     | 31.0%         | 20.0%           | 100.0%           | 0.0%             |
| Renovation/Remodeling                                    | 40.1%         | 31.7%           | 100.0%           | 0.0%             |
| Construction Budgets for the Next Five Years (1997-2001) |               |                 |                  |                  |
| Remain Roughly the Same                                  | 28.4%         |                 |                  |                  |
| Increase Slightly  | 23.5%         |                 |                  |                  |
| Increase Significantly                                   | 26.5%         |                 |                  |                  |
| Decrease Slightly  | 7.8%          |                 |                  |                  |
| Decrease Significantly                                   | 13.7%         |                 |                  |                  |
| % of Construction that is Government Funded              | 25.8%         | 0.0%            | 100.0%           | 0.0%             |

\*110 respondents

\*\*\$ in thousands

**Table 13**  
**Information on Maintenance\*\***

| <i>descriptor</i>   | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|---|-------------|---------------|----------------|----------------|
| Source of Major Maintenance and/or Repair Costs, "1" being the worst problem area   |             |               |                |                |
| Exterior Walls  | 7.6         | 9.0           | 13.0           | 1.0            |
| Interior Walls  | 6.1         | 6.0           | 12.0           | 1.0            |
| Security  | 7.9         | 9.0           | 15.0           | 1.0            |
| Flooring  | 4.0         | 3.5           | 9.0            | 1.0            |
| Electrical  | 4.6         | 4.0           | 11.0           | 1.0            |
| Roof  | 3.3         | 2.0           | 12.0           | 1.0            |
| Structure   | 8.4         | 10.0          | 13.0           | 1.0            |
| Windows   | 5.4         | 5.0           | 13.0           | 1.0            |
| Handicap Accessibility  | 7.7         | 8.0           | 14.0           | 1.0            |
| Mechanical (HVAC)   | 2.6         | 2.0           | 9.0            | 1.0            |
| Plumbing  | 3.4         | 3.0           | 8.0            | 1.0            |
| Lighting  | 5.2         | 5.0           | 11.0           | 1.0            |
| Conveyance (elevator)   | 6.4         | 6.0           | 13.0           | 1.0            |
| Others  | *2.3        | *1.0          | *5.0           | *1.0           |
| Cause of Significant Maintenance and Repair Costs, "1" being the worst problem area |             |               |                |                |
| Federal, State, Local Laws  | 4.0         | 4.0           | 7.0            | 1.0            |
| Materials (accelerated deterioration)   | 3.9         | 4.0           | 7.0            | 1.0            |
| Construction (poor workmanship)   | 3.9         | 4.0           | 7.0            | 1.0            |
| Normal Wear and Tear  | 2.3         | 2.0           | 7.0            | 1.0            |
| Aging of Facility   | 2.0         | 2.0           | 7.0            | 1.0            |
| Poor Design   | 3.6         | 3.0           | 7.0            | 1.0            |
| Technology Replacement  | 3.8         | 4.0           | 7.0            | 1.0            |
| Others  | *4.6        | *4.0          | *8.0           | *1.0           |

\* not an accurate representation due to either very limited number of or no respondent

\*\*110 respondents

**Table 14**  
**Information on Contracting\***

| <i>descriptor</i>                                  | <i>mean</i> | <i>median</i> | <i>maximum</i> | <i>minimum</i> |
|--|-------------|---------------|----------------|----------------|
| # of Construction Contracts to be Awarded in 1997  | 3.5         | 2.5           | 20.0           | 0.0            |
| Type of Construction Contracts Awarded             |             |               |                |                |
| % Lump Sum (fixed price)                           | 83.6%       |               |                |                |
| % Cost Plus  | 12.9%       |               |                |                |
| % Others   | 3.5%        |               |                |                |
| Percentage of Contracts that are competitively Bid | 86.2%       |               |                |                |
| Invitation for Bidding                             |             |               |                |                |
| Open to All Contractors                            | 41.5%       |               |                |                |
| Restricted to Selected Firms on Bidders List       | 44.3%       |               |                |                |
| Negotiation  | 10.4%       |               |                |                |
| Others   | 3.8%        |               |                |                |
| Distribution of Contracts                          |             |               |                |                |
| % General Contractor                               | 62.5%       |               |                |                |
| % Subcontractors (specialty contractors)           | 20.8%       |               |                |                |
| % Design Build                                     | 9.0%        |               |                |                |
| % Professional Construction Mgmt (CM) Contract     | 8.4%        |               |                |                |
| % Others   | 0.1%        |               |                |                |

\*110 respondents

**Table 15**  
**Variable Impacted by Size (# of Set-Up Beds) of Facility**

| <b>Number of Set-Up Beds</b>                             | <b>200-**</b> | <b>200-300**</b> | <b>300-400**</b> | <b>400+**</b> |
|--|---------------|------------------|------------------|---------------|
| Number of Hospitals                                      | 26            | 29               | 23               | 30            |
| <b>Information about Facility</b>                        |               |                  |                  |               |
| Avg. Number of Set-up Beds                               | 140.9         | 248.0            | 346.7            | 547.5         |
| Avg. Percent of Skilled Nursing Beds                     | 81.7%         | 70.7%            | 62.8%            | 48.0%         |
| Avg. Number of Skilled Nursing Beds                      | 117.7         | 172.0            | 218.9            | 261.9         |
| Avg. Number of Intermediate Care Beds                    | 24.7          | 118.9            | 72.9             | 77.2          |
| Avg. Occupancy Rate                                      | 94.0%         | 93.9%            | 94.4%            | 96.6%         |
| Avg. Number of Admission per Year                        | 177.5         | 226.4            | 205.9            | 191.6         |
| Avg. Age of the Primary Structure (Years)                | 21.3          | 26.8             | 24.5             | 30.4          |
| Privately Owned  | 76.9%         | 82.8%            | 78.3%            | 83.3%         |
| Government Owned   | 23.1%         | 17.2%            | 21.7%            | 16.7%         |
| Federal  | 0.0%          | 0.0%             | 20.0%            | 0.0%          |
| State  | 0.0%          | 40.0%            | 20.0%            | 0.0%          |
| County   | 33.3%         | 20.0%            | 80.0%            | 100.0%        |
| City   | 16.7%         | 40.0%            | 0.0%             | 0.0%          |
| Hospital District  | 33.3%         | 0.0%             | 0.0%             | 0.0%          |
| <b>Construction Plans for Long Term Care Facility</b>    |               |                  |                  |               |
| Construction Expenditures in 1995                        | \$520         | \$2,128          | \$1,752          | \$1,869       |
| New Construction   | 10.6%         | 10.5%            | 26.0%            | 29.9%         |
| Maintenance & Repair                                     | 50.6%         | 42.8%            | 31.3%            | 29.3%         |
| Renovation/Remodeling                                    | 38.8%         | 46.7%            | 42.7%            | 41.1%         |
| General Nature of Construction                           |               |                  |                  |               |
| % Add Rooms for Residents                                | 8.2%          | 8.5%             | 18.1%            | 15.2%         |
| % Add Administration Space                               | 1.1%          | 6.5%             | 8.5%             | 7.6%          |
| % Add Supprt Space(dining, lounge, activities room)      | 14.9%         | 10.9%            | 19.6%            | 25.9%         |
| % Updating to meet Building(fire) Code                   | 8.1%          | 11.2%            | 12.7%            | 12.9%         |
| % Others   | 57.5%         | 52.6%            | 41.9%            | 36.6%         |
| Construction(excl. maint./repair) by In-House Personnel  | \$35          | \$56             | \$203            | \$109         |
|  | (16.3%)       | (28.5%)          | (21.2%)          | (10.4%)       |
| Construction Expenditures projected for 1996             | \$167         | \$190            | \$854            | \$1,330       |
| New Construction   | 24.4%         | 11.5%            | 22.3%            | 27.7%         |
| Maintenance & Repair                                     | 46.7%         | 47.6%            | 45.0%            | 35.4%         |
| Renovation/Remodeling                                    | 27.3%         | 40.6%            | 28.5%            | 36.9%         |
| Construction Expenditures projected for 1997             | \$1,269       | \$321            | \$2,635          | \$3,254       |
| New Construction   | 16.9%         | 18.8%            | 33.4%            | 41.6%         |
| Maintenance & Repair                                     | 28.9%         | 37.3%            | 36.9%            | 23.6%         |
| Renovation/Remodeling                                    | 54.2%         | 43.4%            | 28.6%            | 34.8%         |
| Construction Budgets for the Next Five Years (1997-2001) |               |                  |                  |               |
| Remain Roughly the Same                                  | 34.6%         | 37.9%            | 17.4%            | 16.7%         |
| Increase Slightly  | 19.2%         | 24.1%            | 17.4%            | 26.7%         |
| Increase Significantly                                   | 19.2%         | 20.7%            | 39.1%            | 20.0%         |
| Decrease Slightly  | 15.4%         | 3.4%             | 4.3%             | 6.7%          |
| Decrease Significantly                                   | 7.7%          | 3.4%             | 13.0%            | 26.7%         |
| Percentage of Construction that is Government Funded     | 15.7%         | 38.0%            | 18.9%            | 25.7%         |

\$ in thousands

\*\*Category range includes the lower-end integer.

**Table 15 (Continued)**  
**Variable Impacted by Size (# of Set-Up Beds) of Facility**

| <b>Number of Set-Up Beds</b>  | <b>200-**</b> | <b>200-300**</b> | <b>300-400**</b> | <b>400+**</b> |
|---|---------------|------------------|------------------|---------------|
| <b>Information on Maintenance</b>   |               |                  |                  |               |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |               |                  |                  |               |
| Exterior Walls  | 8.4           | 6.3              | 5.9              | 8.9           |
| Interior Walls  | 6.3           | 4.5              | 5.1              | 7.8           |
| Security  | 8.4           | 5.7              | 7.1              | 9.9           |
| Flooring  | 3.7           | 3.8              | 4.2              | 4.7           |
| Electrical  | 3.7           | 4.8              | 4.9              | 5.0           |
| Roof  | 3.9           | 2.3              | 3.2              | 3.8           |
| Structure   | 8.8           | 8.0              | 6.7              | 9.1           |
| Windows   | 5.6           | 5.8              | 4.9              | 5.3           |
| Handicap Accessibility  | 6.6           | 9.2              | 8.3              | 7.4           |
| Mechanical (HVAC)   | 2.8           | 2.6              | 3.0              | 2.2           |
| Plumbing  | 3.3           | 3.5              | 3.5              | 3.3           |
| Lighting  | 4.4           | 5.7              | 4.9              | 6.1           |
| Conveyance (elevator)   | 8.2           | 5.3              | 5.4              | 6.3           |
| Others  | *1.0          | *4.0             | *2.5             | *2.0          |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |               |                  |                  |               |
| Federal, State, Local Laws  | 3.5           | 4.1              | 4.7              | 4.1           |
| Materials (accelerated deterioration)   | 3.9           | 3.8              | 4.2              | 3.6           |
| Construction (poor workmanship)   | 4.1           | 3.3              | 3.6              | 4.8           |
| Normal Wear and Tear  | 2.0           | 2.6              | 2.7              | 2.2           |
| Aging of Facility   | 2.5           | 2.1              | 1.7              | 1.8           |
| Poor Design   | 3.7           | 2.9              | 3.1              | 4.6           |
| Technology Replacement  | 3.5           | 4.2              | 3.4              | 4.2           |
| Others  | *0.0          | *4.7             | *1.0             | *8.0          |
| <b>Information on Construction Contracts</b>  |               |                  |                  |               |
| # of Construction Contracts to be awarded in 1997                                   | 3.0           | 2.4              | 3.5              | 4.6           |
| Type of Construction Contracts Awarded  |               |                  |                  |               |
| % Lump Sum (fixed price)  | 82.4%         | 92.6%            | 85.8%            | 74.2%         |
| % Cost Plus   | 12.9%         | 7.4%             | 4.7%             | 24.4%         |
| % Others  | 57.5%         | 52.6%            | 41.9%            | 36.6%         |
| % of Contracts that are competitively bid   | 96.4%         | 88.5%            | 70.9%            | 88.0%         |
| Invitation for Bidding  |               |                  |                  |               |
| Open to All Contractors   | 46.2%         | 44.8%            | 39.1%            | 30.0%         |
| Restricted to Selected Firms on Bidders List  | 38.5%         | 41.4%            | 39.1%            | 53.3%         |
| Negotiation   | 7.7%          | 3.4%             | 21.7%            | 10.0%         |
| Others  | 3.8%          | 3.4%             | 0.0%             | 6.7%          |
| Distribution of Contracts   |               |                  |                  |               |
| % General Contractor  | 64.4%         | 64.3%            | 77.3%            | 48.2%         |
| % Subcontractors (specialty contractors)  | 26.0%         | 16.4%            | 13.8%            | 25.3%         |
| % Design Build  | 0.2%          | 17.5%            | 1.7%             | 14.1%         |
| % Professional Construction Mgmt (CM)   | 11.9%         | 1.4%             | 7.3%             | 12.8%         |
| % Others  | 0.0%          | 0.3%             | 0.0%             | 0.1%          |

\* not an accurate representation due to either very limited number or no respondent

\*\*Category range includes the lower-end integer.

**Table 16**  
**Variable Impacted by Percent Skilled Nursing Beds**

| % Skilled Nursing Beds                                   | 25-**   | 25-50** | 50-75** | 75-100** | 100**   |
|--|---------|---------|---------|----------|---------|
| Number of Hospitals                                      | 23      | 17      | 14      | 9        | 42      |
| <b>Information about Facility</b>                        |         |         |         |          |         |
| Avg. Number of Set-up Beds                               | 391.4   | 405.4   | 364.8   | 224.5    | 275.3   |
| Avg. Percent of Skilled Nursing Beds                     | 16.8%   | 38.9%   | 58.4%   | 86.4%    | 100.0%  |
| Avg. Number of Skilled Nursing Beds                      | 67.3    | 152.1   | 214.7   | 192.1    | 275.3   |
| Avg. Number of Intermediate Care Beds                    | 98.2    | 50.5    | 95.0    | 20.3     | 0.0     |
| Avg. Occupancy Rate                                      | 94.5%   | 94.9%   | 95.9%   | 89.3%    | 95.8%   |
| Avg. Number of Admission per Year                        | 157.6   | 193.6   | 197.8   | 260.6    | 219.8   |
| Avg. Age of the Primary Structure (Years)                | 21.8    | 27.4    | 28.6    | 30.4     | 26.4    |
| Privately Owned  | 91.3%   | 100.0%  | 92.9%   | 77.8%    | 64.3%   |
| Government Owned   | 8.7%    | 0.0%    | 7.1%    | 22.2%    | 35.7%   |
| Federal  | 50.0%   | 0.0%    | 0.0%    | 0.0%     | 0.0%    |
| State  | 50.0%   | 0.0%    | 0.0%    | 50.0%    | 0.0%    |
| County   | 0.0%    | 0.0%    | 100.0%  | 0.0%     | 73.3%   |
| City   | 0.0%    | 0.0%    | 0.0%    | 0.0%     | 20.0%   |
| Hospital District  | 50.0%   | 0.0%    | 0.0%    | 50.0%    | 0.0%    |
| <b>Construction Plans for Long Term Care Facility</b>    |         |         |         |          |         |
| Construction Expenditures in 1995                        | \$3,676 | \$1,877 | \$833   | \$553    | \$1,042 |
| New Construction   | 33.2%   | 27.9%   | 26.3%   | 0.0%     | 13.0%   |
| Maintenance & Repair                                     | 25.7%   | 34.1%   | 32.8%   | 43.3%    | 43.2%   |
| Renovation/Remodeling                                    | 41.7%   | 38.0%   | 40.9%   | 56.7%    | 43.8%   |
| General Nature of Construction                           |         |         |         |          |         |
| Add Rooms for Residents                                  | 18.4%   | 20.5%   | 12.3%   | 0.0%     | 8.3%    |
| Add Administration Space                                 | 6.9%    | 9.5%    | 2.5%    | 16.7%    | 3.3%    |
| Add Suprt Space(dining, lounge, activity rm)             | 11.7%   | 22.3%   | 46.2%   | 5.0%     | 12.6%   |
| Updating to meet Building(fire) Code                     | 15.8%   | 16.9%   | 12.7%   | 0.0%     | 6.9%    |
| Others   | 42.7%   | 30.8%   | 26.4%   | 65.8%    | 62.6%   |
| Construction by In-House Personnel (\$)                  | \$155   | \$149   | \$32    | \$19     | \$90    |
|  | (15.0%) | (19.1%) | (13.9%) | (16.7%)  | (22.4%) |
| Construction Expenditures projected for 1996             | \$423   | \$712   | \$608   | \$180    | \$904   |
| New Construction   | 14.7%   | 30.6%   | 35.3%   | 28.6%    | 14.3%   |
| Maintenance & Repair                                     | 41.0%   | 40.5%   | 46.5%   | 42.1%    | 42.1%   |
| Renovation/Remodeling                                    | 44.3%   | 22.8%   | 18.3%   | 29.3%    | 43.0%   |
| Construction Expenditures projected for 1997             | \$1,412 | \$2,477 | \$3,260 | \$493    | \$1,934 |
| New Construction   | 43.0%   | 42.0%   | 49.4%   | 6.3%     | 13.1%   |
| Maintenance & Repair                                     | 25.3%   | 17.1%   | 31.2%   | 42.5%    | 37.1%   |
| Renovation/Remodeling                                    | 31.1%   | 39.5%   | 19.4%   | 51.3%    | 49.8%   |
| Construction Budgets for the Next Five Years (1997-2001) |         |         |         |          |         |
| Remain Roughly the Same                                  | 30.4%   | 11.8%   | 14.3%   | 44.4%    | 31.0%   |
| Increase Slightly  | 17.4%   | 29.4%   | 14.3%   | 22.2%    | 21.4%   |
| Increase Significantly                                   | 26.1%   | 29.4%   | 50.0%   | 0.0%     | 19.0%   |
| Decrease Slightly  | 4.3%    | 5.9%    | 0.0%    | 22.2%    | 9.5%    |
| Decrease Significantly                                   | 8.7%    | 23.5%   | 14.3%   | 11.1%    | 11.9%   |
| % of Construction that is Government Funded              | 9.8%    | 22.9%   | 29.8%   | 21.9%    | 32.8%   |

\$ in thousands

\*\*Category range includes the lower-end integer.

**Table 16 (Continued)**  
**Variable Impacted by Percent Skilled Nursing Beds**

| % Skilled Nursing Beds  | 25-** | 25-50** | 50-75** | 75-100** | 100** |
|---|-------|---------|---------|----------|-------|
| <b>Information on Maintenance</b>   |       |         |         |          |       |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |       |         |         |          |       |
| Exterior Walls  | 7.0   | 5.7     | 9.3     | 11.0     | 8.1   |
| Interior Walls  | 5.2   | 5.8     | 7.2     | 5.0      | 7.3   |
| Security  | 7.7   | 6.7     | 5.6     | 8.7      | 9.6   |
| Flooring  | 4.4   | 3.3     | 6.4     | 3.0      | 4.1   |
| Electrical  | 5.4   | 5.3     | 5.0     | 4.0      | 4.0   |
| Roof  | 2.4   | 3.4     | 3.1     | 4.3      | 3.3   |
| Structure   | 10.9  | 3.8     | 8.8     | 12.0     | 7.9   |
| Windows   | 6.9   | 10.0    | 3.8     | 5.0      | 4.1   |
| Handicap Accessibility  | 8.5   | 7.5     | 10.3    | 7.0      | 6.6   |
| Mechanical (HVAC)   | 2.5   | 2.4     | 2.3     | 2.7      | 2.8   |
| Plumbing  | 3.1   | 3.8     | 3.5     | 4.1      | 3.2   |
| Lighting  | 6.5   | 5.3     | 5.3     | 3.6      | 4.9   |
| Conveyance (elevator)   | 6.5   | 6.2     | 6.3     | 6.3      | 6.1   |
| Others  | *3.5  | *2.3    | *1.0    | *0.0     | *2.0  |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |       |         |         |          |       |
| Federal, State, Local Laws  | 4.0   | 3.9     | 4.8     | 4.2      | 3.9   |
| Materials (accelerated deterioration)   | 3.5   | 4.9     | 3.3     | 4.4      | 3.7   |
| Construction (poor workmanship)   | 3.2   | 4.7     | 3.7     | 4.6      | 4.1   |
| Normal Wear and Tear  | 2.3   | 2.1     | 1.8     | 2.7      | 2.4   |
| Aging of Facility   | 1.9   | 1.6     | 1.9     | 1.8      | 2.4   |
| Poor Design   | 3.6   | 3.5     | 3.8     | 2.6      | 3.8   |
| Technology Replacement  | 4.4   | 4.2     | 3.7     | 3.8      | 3.6   |
| Others  | *0.0  | *3.7    | *0.0    | *0.0     | *6.0  |
| <b>Information on Construction Contracts</b>  |       |         |         |          |       |
| # Construction Contracts to be awarded in 1997                                      | 3.9   | 3.1     | 4.9     | 1.4      | 3.2   |
| Type of Construction Contracts Awarded  |       |         |         |          |       |
| % Lump Sum (fixed price)  | 76.9% | 91.8%   | 76.7%   | 97.1%    | 84.3% |
| % Cost Plus   | 21.9% | 3.2%    | 21.3%   | 2.9%     | 12.9% |
| % Others  | 42.7% | 30.8%   | 26.4%   | 65.8%    | 62.6% |
| % of Contracts that are competitively bid   | 81.6% | 69.0%   | 78.3%   | 98.9%    | 93.3% |
| Invitation for Bidding  |       |         |         |          |       |
| Open to All Contractors   | 21.7% | 17.6%   | 35.7%   | 22.2%    | 61.9% |
| Restricted to Selected Firms on Bidders List  | 56.5% | 58.8%   | 50.0%   | 44.4%    | 31.0% |
| Negotiation   | 4.3%  | 17.6%   | 14.3%   | 22.2%    | 4.8%  |
| Others  | 0.0%  | 0.0%    | 14.3%   | 11.1%    | 0.0%  |
| Distribution of Contracts   |       |         |         |          |       |
| % General Contractor  | 62.3% | 47.2%   | 43.6%   | 86.4%    | 69.1% |
| % Subcontractors (specialty contractors)  | 23.7% | 16.1%   | 31.0%   | 12.1%    | 17.7% |
| % Design Build  | 14.0% | 3.3%    | 21.8%   | 1.4%     | 6.2%  |
| % Professional Construction Mgmt (CM)   | 0.8%  | 33.3%   | 3.5%    | 0.0%     | 8.7%  |
| % Others  | 0.0%  | 0.0%    | 0.2%    | 0.0%     | 0.0%  |

\* not an accurate representation due to either very limited number of or no respondent

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 17**  
**Variable Impacted by Age of Structure**

| <i>Age of Primary Structure</i>                          | <i>0-5**</i> | <i>5-15**</i> | <i>15-25**</i> | <i>25-35**</i> | <i>35-45**</i> | <i>45+**</i> |
|--|--------------|---------------|----------------|----------------|----------------|--------------|
| Number of Hospitals                                      | 8            | 18            | 34             | 28             | 8              | 9            |
| <b>Information about Facility</b>                        |              |               |                |                |                |              |
| Avg. Number of Set-up Beds                               | 163.7        | 176.9         | 292.0          | 253.3          | 390.5          | 334.4        |
| Avg. Number of Skilled Nursing Beds                      | 103.1        | 144.4         | 199.6          | 201.1          | 286.5          | 268.9        |
| Avg. Number of Intermediate Care Beds                    | 60.6         | 32.5          | 92.4           | 52.2           | 104.0          | 65.5         |
| Avg. Occupancy Rate                                      | 95.0%        | 93.0%         | 95.4%          | 94.6%          | 95.3%          | 94.9%        |
| Avg. Number of Admission per Year                        | 227.0        | 210.5         | 172.4          | 247.0          | 164.2          | 179.8        |
| Avg. Age of the Primary Structure (Years)                | 3.3          | 11.2          | 22.0           | 30.1           | 38.6           | 67.3         |
| Privately Owned  | 100.0%       | 77.8%         | 79.4%          | 85.7%          | 62.5%          | 77.8%        |
| Government Owned   | 0.0%         | 22.2%         | 20.6%          | 14.3%          | 37.5%          | 22.2%        |
| Federal  | 0.0%         | 0.0%          | 0.0%           | 25.0%          | 0.0%           | 0.0%         |
| State  | 0.0%         | 0.0%          | 14.3%          | 25.0%          | 0.0%           | 50.0%        |
| County   | 0.0%         | 50.0%         | 71.4%          | 25.0%          | 100.0%         | 50.0%        |
| City   | 0.0%         | 50.0%         | 0.0%           | 25.0%          | 0.0%           | 0.0%         |
| Hospital District  | 0.0%         | 0.0%          | 0.0%           | 0.0%           | 0.0%           | 0.0%         |
| <b>Construction Plans for Long Term Care Facility</b>    |              |               |                |                |                |              |
| Construction Expenditures in 1995                        | \$2,679      | \$2,551       | \$1,940        | \$556          | \$891          | \$2,283      |
| New Construction   | 28.6%        | 25.5%         | 25.3%          | 12.7%          | 11.8%          | 21.0%        |
| Maintenance & Repair                                     | 28.6%        | 25.9%         | 39.8%          | 50.2%          | 18.9%          | 31.0%        |
| Renovation/Remodeling                                    | 42.9%        | 48.6%         | 34.9%          | 37.1%          | 70.6%          | 48.0%        |
| General Nature of Construction                           |              |               |                |                |                |              |
| Add Rooms for Residents                                  | 0.0%         | 24.8%         | 15.9%          | 3.5%           | 1.7%           | 25.0%        |
| Add Administration Space                                 | 0.0%         | 11.5%         | 2.2%           | 12.9%          | 0.0%           | 0.9%         |
| Add Suprt Space(dining,lounge,activity rm)               | 0.0%         | 26.2%         | 17.7%          | 20.6%          | 11.7%          | 26.2%        |
| Updating to meet Building(fire) Code                     | 25.0%        | 3.0%          | 15.0%          | 4.1%           | 25.0%          | 12.1%        |
| Others   | 75.0%        | 27.7%         | 42.8%          | 54.4%          | 61.7%          | 28.7%        |
| Construction by In-House Personnel (\$)                  | \$81         | \$42          | \$146          | \$115          | \$18           | \$81         |
|  | (1.0%)       | (24.0%)       | (26.6%)        | (16.9%)        | (6.0%)         | (11.5%)      |
| Construction Expenditures projected for 1996             | \$233        | \$436         | \$589          | \$1,082        | \$666          | \$504        |
| New Construction   | 20.0%        | 40.4%         | 15.3%          | 23.8%          | 5.0%           | 11.3%        |
| Maintenance & Repair                                     | 25.0%        | 30.8%         | 54.9%          | 41.8%          | 38.8%          | 47.7%        |
| Renovation/Remodeling                                    | 41.7%        | 25.5%         | 29.9%          | 34.1%          | 56.3%          | 41.1%        |
| Construction Expenditures projected for 1997             | \$212        | \$2,368       | \$3,054        | \$1,476        | \$825          | \$1,540      |
| New Construction   | 34.0%        | 42.9%         | 36.4%          | 18.0%          | 14.3%          | 19.1%        |
| Maintenance & Repair                                     | 35.0%        | 20.2%         | 34.7%          | 34.3%          | 23.6%          | 34.0%        |
| Renovation/Remodeling                                    | 27.0%        | 36.2%         | 28.9%          | 47.8%          | 62.1%          | 46.9%        |
| Construction Budgets for the Next Five Years (1997-2001) |              |               |                |                |                |              |
| Remain Roughly the Same                                  | 37.5%        | 16.7%         | 23.5%          | 42.9%          | 25.0%          | 11.1%        |
| Increase Slightly  | 0.0%         | 22.2%         | 20.6%          | 14.3%          | 37.5%          | 44.4%        |
| Increase Significantly                                   | 25.0%        | 33.3%         | 32.4%          | 10.7%          | 12.5%          | 22.2%        |
| Decrease Slightly  | 25.0%        | 5.6%          | 2.9%           | 7.1%           | 12.5%          | 11.1%        |
| Decrease Significantly                                   | 0.0%         | 11.1%         | 14.7%          | 21.4%          | 12.5%          | 0.0%         |
| % of Construction that is Government Funded              | 2.9%         | 19.3%         | 38.2%          | 17.0%          | 34.4%          | 41.4%        |

\$ in thousands

Category range includes the lower-end integer.

**Table 17 (Continued)**  
**Variable Impacted by Age of Structure**

| <i>Age of Primary Structure</i>   | <i>0-5**</i> | <i>5-15**</i> | <i>15-25**</i> | <i>25-35**</i> | <i>35-45**</i> | <i>45+**</i> |
|---|--------------|---------------|----------------|----------------|----------------|--------------|
| <b>Information on Maintenance</b>   |              |               |                |                |                |              |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |              |               |                |                |                |              |
| Exterior Walls  | *0.0         | 3.6           | 8.4            | 9.0            | 10.0           | 8.4          |
| Interior Walls  | 2.0          | 3.4           | 7.2            | 6.8            | 6.0            | 7.2          |
| Security  | 4.0          | 4.3           | 8.4            | 10.4           | 10.0           | 7.0          |
| Flooring  | 2.7          | 3.4           | 4.0            | 4.3            | 4.6            | 4.3          |
| Electrical  | 3.0          | 4.3           | 4.7            | 4.5            | 4.0            | 6.1          |
| Roof  | 1.7          | 2.1           | 4.1            | 2.5            | 4.4            | 3.4          |
| Structure   | *0.0         | 6.5           | 9.9            | 8.9            | 7.8            | 7.5          |
| Windows   | *0.0         | 4.0           | 4.8            | 4.3            | 7.5            | 6.2          |
| Handicap Accessibility  | *0.0         | 7.5           | 7.0            | 7.2            | 9.4            | 9.2          |
| Mechanical (HVAC)   | 1.3          | 2.5           | 2.4            | 2.6            | 4.0            | 3.7          |
| Plumbing  | 3.0          | 2.6           | 3.0            | 3.3            | 4.6            | 5.3          |
| Lighting  | 3.0          | 3.0           | 6.3            | 4.1            | 5.8            | 7.7          |
| Conveyance (elevator)   | 2.0          | 4.5           | 6.4            | 6.3            | 8.0            | 6.8          |
| Others  | *3.0         | *2.0          | *1.0           | *2.5           | *2.5           | *0.0         |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |              |               |                |                |                |              |
| Federal, State, Local Laws  | 4.0          | 4.0           | 4.0            | 3.5            | 4.2            | 4.9          |
| Materials (accelerated deterioration)   | 1.5          | 3.1           | 3.9            | 4.1            | 4.0            | 4.8          |
| Construction (poor workmanship)   | 1.5          | 2.0           | 4.8            | 3.9            | 5.5            | 3.8          |
| Normal Wear and Tear  | 2.6          | 1.9           | 2.4            | 2.6            | 2.8            | 2.0          |
| Aging of Facility   | 6.5          | 2.3           | 1.9            | 1.8            | 1.7            | 1.9          |
| Poor Design   | 2.5          | 3.3           | 4.1            | 3.1            | 3.8            | 4.6          |
| Technology Replacement  | 4.3          | 3.3           | 4.1            | 3.8            | 3.7            | 3.7          |
| Others  | *4.5         | *0.0          | 3.0            | *0.0           | *0.0           | *0.0         |
| <b>Information on Construction Contracts</b>  |              |               |                |                |                |              |
| # Construction Contract to be awarded in 1997                                       | 1.3          | 3.8           | 4.0            | 2.8            | 3.1            | 1.1          |
| Type of Construction Contracts Awarded  |              |               |                |                |                |              |
| % Lump Sum (fixed price)  | 83.3%        | 86.8%         | 85.2%          | 79.8%          | 85.7%          | 75.0%        |
| % Cost Plus   | 16.7%        | 13.2%         | 7.0%           | 15.8%          | 14.3%          | 25.0%        |
| % Others  | 75.0%        | 27.7%         | 42.8%          | 54.4%          | 61.7%          | 28.7%        |
| % of Contracts that are competitively bid   | 82.5%        | 77.1%         | 89.8%          | 86.0%          | 77.9%          | 100.0%       |
| Invitation for Bidding  |              |               |                |                |                |              |
| Open to All Contractors   | 12.5%        | 38.9%         | 50.0%          | 35.7%          | 50.0%          | 33.3%        |
| Restricted to selected firms on Bidders List  | 62.5%        | 33.3%         | 44.1%          | 42.9%          | 25.0%          | 55.6%        |
| Negotiation   | 0.0%         | 22.2%         | 5.9%           | 14.3%          | 12.5%          | 0.0%         |
| Others  | 0.0%         | 0.0%          | 5.9%           | 3.6%           | 0.0%           | 11.1%        |
| Distribution of Contracts   |              |               |                |                |                |              |
| % General Contractor  | 83.3%        | 72.5%         | 51.5%          | 62.9%          | 77.5%          | 59.9%        |
| % Subcontractors (specialty contractors)  | 8.3%         | 14.5%         | 24.9%          | 23.2%          | 13.0%          | 28.6%        |
| % Design Build  | 0.0%         | 12.5%         | 12.3%          | 5.5%           | 8.3%           | 11.2%        |
| % Professional Construction Mgmt (CM)   | 8.3%         | 0.5%          | 13.7%          | 8.4%           | 1.3%           | 0.1%         |
| % Others  | 0.0%         | 0.0%          | 0.3%           | 0.0%           | 0.0%           | 0.3%         |

\* not an accurate representation due to either very limited number of or no respondent

\*\*Category range includes the lower-end integer.

\$ in thousands

**Table 18****Variable Impacted by Occupancy Rate**

| <b>% Occupancy Rate</b>                                  | <b>93-**</b> | <b>93-95**</b> | <b>95-97**</b> | <b>97-99**</b> | <b>99+**</b> |
|--|--------------|----------------|----------------|----------------|--------------|
| Number of Hospitals                                      | 26           | 7              | 17             | 31             | 23           |
| <b>Information about Facility</b>                        |              |                |                |                |              |
| Avg. Number of Skilled Nursing Beds                      | 167.6        | 219.3          | 180.1          | 222.0          | 194.4        |
| Avg. Number of Intermediate Care Beds                    | 37.3         | 52.5           | 80.0           | 64.8           | 109.7        |
| Avg. Occupancy Rate                                      | 86.8%        | 93.5%          | 95.6%          | 97.8%          | 99.5%        |
| Avg. Number of Admission per Year                        | 273          | 226            | 213            | 181            | 113          |
| Avg. Age of the Primary Structure (Years)                | 26.9         | 24.4           | 27.2           | 28.0           | 22.0         |
| Privately Owned  | 84.6%        | 85.7%          | 82.4%          | 74.2%          | 82.6%        |
| Government Owned   | 15.4%        | 14.3%          | 17.6%          | 25.8%          | 17.4%        |
| Federal  | 0.0%         | 0.0%           | 0.0%           | 0.0%           | 25.0%        |
| State  | 25.0%        | 0.0%           | 0.0%           | 12.5%          | 25.0%        |
| County   | 50.0%        | 100.0%         | 100.0%         | 37.5%          | 75.0%        |
| City   | 25.0%        | 0.0%           | 0.0%           | 25.0%          | 0.0%         |
| Hospital District  | 0.0%         | 0.0%           | 0.0%           | 0.0%           | 0.0%         |
| <b>Construction Plans for Long Term Care Facility</b>    |              |                |                |                |              |
| Construction Expenditures in 1995                        | \$755        | \$834          | \$1,358        | \$1,805        | \$2,963      |
| New Construction   | 7.8%         | 24.2%          | 39.1%          | 20.4%          | 15.3%        |
| Maintenance & Repair                                     | 44.3%        | 35.8%          | 23.5%          | 36.4%          | 41.1%        |
| Renovation/Remodeling                                    | 47.9%        | 40.0%          | 38.1%          | 43.2%          | 43.7%        |
| General Nature of Construction                           |              |                |                |                |              |
| Add Rooms for Residents                                  | 6.9%         | 6.0%           | 21.1%          | 7.8%           | 18.8%        |
| Add Administration Space                                 | 2.7%         | 4.0%           | 10.0%          | 4.8%           | 10.0%        |
| Add Suprt Space(dining, lounge, activity room)           | 8.2%         | 14.0%          | 5.8%           | 30.6%          | 23.8%        |
| Updating to meet Building(fire) Code                     | 15.7%        | 24.0%          | 7.7%           | 10.2%          | 11.5%        |
| Others   | 61.7%        | 52.0%          | 48.9%          | 41.4%          | 28.8%        |
| Construction by In-House Personnel (\$)                  | \$67         | \$34           | \$72           | \$115          | \$174        |
|  | (20.3%)      | (5.6%)         | (26.8%)        | (13.6%)        | (22.9%)      |
| Construction Expenditures projected for 1996             | \$509        | \$639          | \$490          | \$533          | \$1,166      |
| New Construction   | 11.6%        | 31.1%          | 40.4%          | 15.8%          | 21.7%        |
| Maintenance & Repair                                     | 51.9%        | 23.1%          | 30.5%          | 47.7%          | 43.5%        |
| Renovation/Remodeling                                    | 36.0%        | 45.7%          | 29.1%          | 33.5%          | 34.2%        |
| Construction Expenditures projected for 1997             | \$659        | \$1,600        | \$1,534        | \$1,280        | \$5,040      |
| New Construction   | 20.0%        | 27.8%          | 48.2%          | 23.6%          | 35.3%        |
| Maintenance & Repair                                     | 39.1%        | 40.2%          | 34.7%          | 28.7%          | 19.9%        |
| Renovation/Remodeling                                    | 40.9%        | 32.0%          | 16.3%          | 46.9%          | 44.7%        |
| Construction Budgets for the Next Five Years (1997-2001) |              |                |                |                |              |
| Remain Roughly the Same                                  | 42.3%        | 28.6%          | 17.6%          | 22.6%          | 17.4%        |
| Increase Slightly  | 26.9%        | 14.3%          | 23.5%          | 25.8%          | 17.4%        |
| Increase Significantly                                   | 7.7%         | 28.6%          | 41.2%          | 16.1%          | 34.8%        |
| Decrease Slightly  | 11.5%        | 0.0%           | 5.9%           | 9.7%           | 4.3%         |
| Decrease Significantly                                   | 7.7%         | 28.6%          | 11.8%          | 16.1%          | 13.0%        |
| % of Construction that is Government Funded              | 15.7%        | 33.0%          | 13.3%          | 26.4%          | 47.5%        |

\$ in thousands

\*\*Category range includes the lower-end integer.

**Table 18 (Continued)**  
**Variable Impacted by Occupancy Rate**

| % Occupancy Rate  | 93-** | 93-95** | 95-97** | 97-99** | 99+** |
|---|-------|---------|---------|---------|-------|
| <b>Information on Maintenance</b>   |       |         |         |         |       |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |       |         |         |         |       |
| Exterior Walls  | 6.2   | 8.3     | 7.6     | 8.9     | 7.3   |
| Interior Walls  | 3.8   | 7.0     | 7.3     | 6.5     | 7.6   |
| Security  | 5.1   | 10.0    | 10.7    | 7.5     | 9.3   |
| Flooring  | 3.1   | 6.0     | 4.2     | 4.1     | 4.4   |
| Electrical  | 4.8   | 3.3     | 4.7     | 4.3     | 5.4   |
| Roof  | 3.4   | 3.3     | 3.5     | 3.4     | 2.9   |
| Structure   | 6.3   | 9.3     | 8.4     | 7.9     | 10.2  |
| Windows   | 5.2   | 7.3     | 6.4     | 4.1     | 4.7   |
| Handicap Accessibility  | 7.0   | 6.3     | 8.8     | 9.0     | 6.0   |
| Mechanical (HVAC)   | 3.3   | 3.4     | 2.3     | 2.2     | 2.1   |
| Plumbing  | 3.6   | 4.2     | 3.5     | 3.0     | 3.1   |
| Lighting  | 4.8   | 7.0     | 5.4     | 4.8     | 5.0   |
| Conveyance (elevator)   | 6.3   | 7.3     | 5.2     | 6.0     | 7.6   |
| Others  | *3.0  | *1.0    | *1.8    | *5.0    | *0.0  |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |       |         |         |         |       |
| Federal, State, Local Laws  | 4.4   | 3.8     | 4.8     | 3.9     | 3.4   |
| Materials (accelerated deterioration)   | 4.0   | 4.2     | 4.1     | 2.9     | 4.6   |
| Construction (poor workmanship)   | 3.5   | 5.3     | 3.6     | 4.1     | 3.8   |
| Normal Wear and Tear  | 2.5   | 2.5     | 2.3     | 2.2     | 2.4   |
| Aging of Facility   | 1.3   | 2.1     | 2.4     | 2.4     | 1.9   |
| Poor Design   | 2.6   | 4.8     | 3.7     | 4.1     | 3.3   |
| Technology Replacement  | 3.0   | 3.8     | 4.6     | 3.6     | 3.8   |
| Others  | *2.0  | *0.0    | *8.0    | *4.5    | *4.0  |
| <b>Information on Construction Contracts</b>  |       |         |         |         |       |
| # Construction Contracts to be awarded in 1997                                      | 3.3   | 4.3     | 3.3     | 2.9     | 2.4   |
| Type of Construction Contracts Awarded  |       |         |         |         |       |
| % Lump Sum (fixed price)  | 79.0% | 65.8%   | 89.6%   | 83.8%   | 85.7% |
| % Cost Plus   | 16.0% | 26.7%   | 10.4%   | 12.2%   | 11.0% |
| % Others  | 61.7% | 52.0%   | 48.9%   | 41.4%   | 28.8% |
| % of Contracts that are competitively bid   | 96.2% | 82.9%   | 84.4%   | 92.8%   | 75.0% |
| Invitation for Bidding  |       |         |         |         |       |
| Open to All Contractors   | 34.6% | 28.6%   | 41.2%   | 41.9%   | 47.8% |
| Restricted to Selected Firms on Bidders List  | 50.0% | 42.9%   | 35.3%   | 41.9%   | 43.5% |
| Negotiation   | 11.5% | 14.3%   | 11.8%   | 6.5%    | 8.7%  |
| Others  | 3.8%  | 14.3%   | 5.9%    | 3.2%    | 0.0%  |
| Distribution of Contracts   |       |         |         |         |       |
| % General Contractor  | 67.8% | 73.0%   | 65.2%   | 59.8%   | 58.8% |
| % Subcontractors (specialty contractors)  | 32.2% | 17.0%   | 13.7%   | 28.4%   | 8.3%  |
| % Design Build  | 0.0%  | 12.0%   | 2.8%    | 10.8%   | 16.1% |
| % Professional Construction Mgmt (CM)   | 0.0%  | 0.0%    | 18.3%   | 2.8%    | 16.8% |
| % Others  | 0.0%  | 0.0%    | 0.0%    | 0.4%    | 0.0%  |

\* not an accurate representation due to either very limited number of or no respondent

\*\*Category range includes the lower-end integer.

**Table 19**  
**Difference between Public and Private Facilities**

| <i>descriptor</i>  | <i>Public</i> | <i>Private</i> |
|--|---------------|----------------|
| Number of Hospitals                                      | 21            | 87             |
| <b>Information about Facility</b>                        |               |                |
| Avg. Number of Skilled Nursing Beds                      | 285.1         | 173.3          |
| Avg. Number of Intermediate Care Beds                    | 131.2         | 61.4           |
| Avg. Occupancy Rate                                      | 95.1%         | 94.7%          |
| Avg. Number of Admission per Year                        | 149           | 213            |
| Avg. Age of the Primary Structure (Years)                | 28.2          | 25.5           |
| Privately Owned  | 0.0%          | 100.0%         |
| Government Owned   | 100.0%        | 0.0%           |
| Federal  | 4.8%          | 0.0%           |
| State  | 14.3%         | 0.0%           |
| County   | 57.1%         | 0.0%           |
| City   | 14.3%         | 0.0%           |
| Hospital District  | 9.52%         | 0.0%           |
| <b>Construction Plans for Long Term Care Facility</b>    |               |                |
| Construction Expenditures in 1995                        | \$512         | \$1,910        |
| New Construction   | 13.1%         | 21.4%          |
| Maintenance & Repair                                     | 26.9%         | 39.9%          |
| Renovation/Remodeling                                    | 60.1%         | 38.9%          |
| General Nature of Construction                           |               |                |
| Add Rooms for Residents                                  | 7.3%          | 13.9%          |
| Add Administration Space                                 | 1.5%          | 7.3%           |
| Add Suprt Space(dining, lounge, activity rm)             | 14.3%         | 19.9%          |
| Updating to meet Building(fire) Code                     | 6.9%          | 12.5%          |
| Others   | 64.2%         | 41.4%          |
| Construction(excl. maint./repair) by In-House Personnel  | \$88          | \$98           |
|  | (18.4%)       | (18.4%)        |
| Construction Expenditures projected for 1996             | \$1,076       | \$556          |
| New Construction   | 19.7%         | 22.0%          |
| Maintenance & Repair                                     | 37.5%         | 44.1%          |
| Renovation/Remodeling                                    | 42.9%         | 32.3%          |
| Construction Expenditures projected for 1997             | \$1,328       | \$2,091        |
| New Construction   | 13.1%         | 32.5%          |
| Maintenance & Repair                                     | 41.8%         | 28.7%          |
| Renovation/Remodeling                                    | 45.1%         | 38.4%          |
| Construction Budgets for the Next Five Years (1997-2001) |               |                |
| Remain Roughly the Same                                  | 28.6%         | 26.4%          |
| Increase Slightly  | 14.3%         | 24.1%          |
| Increase Significantly                                   | 19.0%         | 25.3%          |
| Decrease Slightly  | 9.5%          | 6.9%           |
| Decrease Significantly                                   | 19.0%         | 11.5%          |
| % of Construction that is Government Funded              | 68.9%         | 14.2%          |

\$ in thousands

**Table 19 (Continued)**  
**Difference between Public and Private Facilities**

| <i>descriptor</i>   | <i>Public</i> | <i>Private</i> |
|---|---------------|----------------|
| <b>Information on Maintenance</b>   |               |                |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |               |                |
| Exterior Walls  | 10.6          | 7.1            |
| Interior Walls  | 6.1           | 6.1            |
| Security  | 11.5          | 7.4            |
| Flooring  | 4.8           | 3.9            |
| Electrical  | 5.6           | 4.4            |
| Roof  | 2.5           | 3.5            |
| Structure   | 8.7           | 8.3            |
| Windows   | 2.5           | 6.5            |
| Handicap Accessibility  | 6.1           | 8.2            |
| Mechanical (HVAC)   | 2.8           | 2.6            |
| Plumbing  | 3.8           | 3.3            |
| Lighting  | 4.1           | 5.5            |
| Conveyance (elevator)   | 7.4           | 6.1            |
| Others  | *0.0          | *2.3           |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |               |                |
| Federal, State, Local Laws  | 4.6           | 3.9            |
| Materials (accelerated deterioration)   | 3.8           | 3.9            |
| Construction (poor workmanship)   | 4.1           | 3.9            |
| Normal Wear and Tear  | 2.9           | 2.2            |
| Aging of Facility   | 1.9           | 2.0            |
| Poor Design   | 3.0           | 3.7            |
| Technology Replacement  | 3.4           | 4.0            |
| Others  | *0.0          | *4.6           |
| <b>Information on Construction Contracts</b>  |               |                |
| Number of Construction Contracts to be awarded in 1997                              | 3.6           | 3.3            |
| Type of Construction Contracts Awarded  |               |                |
| % Lump Sum (fixed price)  | 97.2%         | 79.9%          |
| % Cost Plus   | 2.8%          | 15.7%          |
| % Others  | 64.2%         | 41.4%          |
| % of Contracts that are competitively bid   | 95.0%         | 83.7%          |
| Invitation for Bidding  |               |                |
| Open to All Contractors   | 90.5%         | 27.6%          |
| Restricted to Selected Firms on Bidders List  | 9.5%          | 51.7%          |
| Negotiation   | 0.0%          | 12.6%          |
| Others  | 0.0%          | 4.6%           |
| Distribution of Contracts   |               |                |
| % General Contractor  | 76.3%         | 58.2%          |
| % Subcontractors (specialty contractors)  | 7.1%          | 24.7%          |
| % Design Build  | 14.6%         | 7.7%           |
| % Professional Construction Mgmt (CM)   | 1.5%          | 10.4%          |
| % Others  | 0.4%          | 0.0%           |

\* not an accurate representation due to either very limited number of or no respondent  
\$ in thousands

**Table 20**  
**Facility Characteristics by Region**

| <i>Region Number</i>                                     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> |
|--|----------|----------|----------|----------|----------|----------|----------|
| Number of Hospitals                                      | 10       | 10       | 2        | 4        | 1        | 9        | 27       |
| <b>Information about Facility</b>                        |          |          |          |          |          |          |          |
| Avg. Number of Skilled Nursing Beds                      | 150.9    | 205.3    | 115.0    | 102.7    | 14.0     | 176.7    | 240.1    |
| Avg. Number of Intermediate Care Beds                    | 74.3     | 75.0     | 0.0      | 123.3    | 144.0    | 68.2     | 72.9     |
| Avg. Occupancy Rate                                      | 89.9%    | 94.4%    | 80.0%    | 95.6%    | 97.0%    | 95.5%    | 97.4%    |
| Avg. Number of Admission per Year                        | 262      | 176 n/a  |          | 208      | 48       | 152      | 163      |
| Avg. Age of the Primary Structure (Years)                | 30.1     | 33.6     | 12.0     | 19.9     | 21.0     | 35.5     | 27.0     |
| Privately Owned  | 90.0%    | 40.0%    | 100.0%   | 75.0%    | 100.0%   | 77.8%    | 81.5%    |
| Government Owned   | 10.0%    | 60.0%    | 0.0%     | 25.0%    | 0.0%     | 22.2%    | 11.1%    |
| Federal  | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     |
| State  | 100.0%   | 0.0%     | 0.0%     | 100.0%   | 0.0%     | 0.0%     | 0.0%     |
| County   | 0.0%     | 50.0%    | 0.0%     | 0.0%     | 0.0%     | 100.0%   | 66.7%    |
| City   | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 33.3%    |
| Hospital District  | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     |
| <b>Construction Plans for Long Term Care Facility</b>    |          |          |          |          |          |          |          |
| Construction Expenditures in 1995                        | \$1,449  | \$627    | \$2,400  | \$1,136  | \$8,800  | \$266    | \$1,389  |
| New Construction   | 24.4%    | 0.0%     | 95.0%    | 42.8%    | 85.0%    | 12.3%    | 18.7%    |
| Maintenance & Repair                                     | 30.0%    | 23.9%    | 5.0%     | 18.8%    | 5.0%     | 57.8%    | 44.1%    |
| Renovation/Remodeling                                    | 45.6%    | 76.1%    | 0.0%     | 38.5%    | 10.0%    | 31.5%    | 37.2%    |
| General Nature of Construction                           |          |          |          |          |          |          |          |
| Add Rooms for Residents                                  | 9.3%     | 0.6%     | 49.2%    | 27.5%    | 40.0%    | 19.2%    | 5.8%     |
| Add Administration Space                                 | 11.4%    | 0.3%     | 5.0%     | 0.0%     | 0.0%     | 4.8%     | 2.4%     |
| Add Support Space  | 14.3%    | 29.1%    | 31.7%    | 20.3%    | 0.0%     | 8.0%     | 22.7%    |
| Updating to meet Building(fire) Code                     | 23.6%    | 5.0%     | 16.7%    | 25.0%    | 60.0%    | 10.0%    | 10.6%    |
| Others   | 41.4%    | 55.6%    | 0.0%     | 27.3%    | 0.0%     | 58.0%    | 50.4%    |
| Construction by In-House Personnel                       | \$91     | \$11     | \$0      | \$35     | \$0      | \$16     | \$87     |
|  | (15.8%)  | (4.6%)   | (35.0%)  | (4.7%)   | (0.0%)   | (18.7%)  | (26.3%)  |
| Construction Expenditures projected for 1996             | \$358    | \$582    | \$3,000  | \$1,262  | \$1,300  | \$481    | \$347    |
| New Construction   | 18.9%    | 28.3%    | 95.0%    | 46.3%    | 0.0%     | 34.0%    | 16.5%    |
| Maintenance & Repair                                     | 47.8%    | 10.3%    | 5.0%     | 19.3%    | 33.0%    | 35.3%    | 47.0%    |
| Renovation/Remodeling                                    | 33.3%    | 61.4%    | 0.0%     | 34.5%    | 67.0%    | 30.7%    | 32.6%    |
| Construction Expenditures projected for 1997             | \$320    | \$954    | \$2,500  | \$1,067  | \$2,500  | \$1,394  | \$4,285  |
| New Construction   | 36.3%    | 18.8%    | 95.0%    | 58.3%    | 40.0%    | 21.7%    | 40.9%    |
| Maintenance & Repair                                     | 39.4%    | 32.8%    | 5.0%     | 23.3%    | 20.0%    | 24.7%    | 22.0%    |
| Renovation/Remodeling                                    | 24.4%    | 48.5%    | 0.0%     | 18.3%    | 40.0%    | 53.6%    | 36.2%    |
| Construction Budgets for the Next Five Years (1997-2001) |          |          |          |          |          |          |          |
| Remain Roughly the Same                                  | 40.0%    | 30.0%    | 0.0%     | 0.0%     | 100.0%   | 22.2%    | 16.8%    |
| Increase Slightly  | 10.0%    | 10.0%    | 0.0%     | 50.0%    | 0.0%     | 22.2%    | 33.3%    |
| Increase Significantly                                   | 10.0%    | 40.0%    | 100.0%   | 25.0%    | 0.0%     | 55.6%    | 33.3%    |
| Decrease Slightly  | 20.0%    | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 0.0%     | 8.3%     |
| Decrease Significantly                                   | 20.0%    | 20.0%    | 0.0%     | 25.0%    | 0.0%     | 0.0%     | 8.3%     |
| % of Construction that is Government Funded              | 27.5%    | 35.0%    | 0.0%     | 25.0%    | 0.0%     | 36.0%    | 32.1%    |

\$ in thousands

**Table 20 (Continued)**  
**Facility Characteristics by Region**

| <i>Region Number</i>  | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> |
|---|----------|----------|----------|----------|----------|----------|----------|
| <b>Information on Maintenance</b>   |          |          |          |          |          |          |          |
| Source of Major maintenance and/or Repair Costs, "1" being the worst problem area   |          |          |          |          |          |          |          |
| Exterior Walls  | 10.3     | 11.0     | 4.0      | 5.3      | n/a      | 10.0     | 7.0      |
| Interior Walls  | 10.0     | 5.3      | 3.0      | 6.0      | n/a      | 6.7      | 8.0      |
| Security  | 7.3      | 5.0      | n/a      | n/a      | n/a      | 10.6     | 9.3      |
| Flooring  | 3.4      | 4.6      | 2.0      | 4.8      | 3.0      | 5.9      | 4.3      |
| Electrical  | 4.2      | 3.3      | n/a      | 3.5      | 4.0      | 6.2      | 4.5      |
| Roof  | 3.0      | 5.3      | 1.0      | 4.7      | 5.0      | 2.6      | 3.9      |
| Structure   | 7.8      | 6.3      | n/a      | 7.5      | n/a      | 9.5      | 8.7      |
| Windows   | 6.0      | 3.5      | 7.0      | 8.0      | n/a      | 7.0      | 6.0      |
| Handicap Accessibility  | 4.0      | 8.7      | n/a      | 6.3      | n/a      | 10.3     | 9.1      |
| Mechanical (HVAC)   | 3.3      | 2.7      | 6.0      | 4.8      | 2.0      | 2.1      | 1.9      |
| Plumbing  | 3.9      | 4.0      | n/a      | 5.3      | 1.0      | 4.3      | 2.8      |
| Lighting  | 4.5      | 5.6      | 5.0      | 8.0      | n/a      | 7.3      | 5.8      |
| Conveyance (elevator)   | 6.3      | 6.0      | 8.0      | 9.0      | 6.0      | 7.3      | 6.3      |
| Others  | 1.0      | n/a      | 1.0      | 1.0      | n/a      | 4.0      | 3.0      |
| Cause of Significant maintenance and Repair Costs, "1" being the worst problem area |          |          |          |          |          |          |          |
| Federal, State, Local Laws  | 3.4      | 3.8      | 2.5      | 3.3      | n/a      | 5.0      | 4.4      |
| Materials (accelerated deterioration)   | 4.3      | 2.8      | 3.0      | 3.0      | n/a      | 4.8      | 4.2      |
| Construction (poor workmanship)   | 4.4      | 5.8      | n/a      | 4.3      | n/a      | 5.0      | 4.2      |
| Normal Wear and Tear  | 2.1      | 2.7      | 1.5      | 3.8      | 1.0      | 2.1      | 2.0      |
| Aging of Facility   | 2.3      | 2.9      | n/a      | 2.0      | 2.0      | 1.3      | 1.6      |
| Poor Design   | 3.0      | 3.3      | n/a      | 5.7      | n/a      | 3.9      | 4.4      |
| Technology Replacement  | 3.8      | 3.1      | 2.0      | 3.8      | 3.0      | 4.2      | 3.7      |
| Others  | n/a      | n/a      | n/a      | n/a      | n/a      | n/a      | 3.8      |
| <b>Information on Construction Contracts</b>  |          |          |          |          |          |          |          |
| # Construc. Contracts to be awarded in 1997   | 1.0      | 5.4      | 10.5     | 6.3      | 1.0      | 3.3      | 4.2      |
| Type of Construction Contracts Awarded  |          |          |          |          |          |          |          |
| % Lump Sum (fixed price)  | 68.8%    | 81.3%    | 72.5%    | 82.5%    | 100.0%   | 96.7%    | 88.5%    |
| % Cost Plus   | 31.3%    | 18.8%    | 27.5%    | 15.0%    | 0.0%     | 0.6%     | 7.2%     |
| % Others  | 41.4%    | 55.6%    | 0.0%     | 27.3%    | 0.0%     | 58.0%    | 50.4%    |
| % of Contracts that are competitively bid   | 93.3%    | 86.1%    | 55.0%    | 62.5%    | 100.0%   | 92.2%    | 84.8%    |
| Invitation for Bidding  |          |          |          |          |          |          |          |
| Open to All Contractors   | 30.0%    | 50.0%    | 50.0%    | 25.0%    | 0.0%     | 44.4%    | 33.3%    |
| Restricted to Selec. Firms on Bidders List  | 50.0%    | 40.0%    | 50.0%    | 25.0%    | 100.0%   | 44.4%    | 59.3%    |
| Negotiation   | 10.0%    | 0.0%     | 50.0%    | 50.0%    | 0.0%     | 0.0%     | 7.4%     |
| Others  | 0.0%     | 10.0%    | 0.0%     | 0.0%     | 0.0%     | 11.1%    | 0.0%     |
| Distribution of Contracts   |          |          |          |          |          |          |          |
| % General Contractor  | 58.3%    | 67.3%    | 0.0%     | 78.3%    | 100.0%   | 54.4%    | 62.9%    |
| % Subcontractors (specialty contractors)  | 5.0%     | 14.2%    | 100.0%   | 11.3%    | 0.0%     | 33.4%    | 21.6%    |
| % Design Build  | 20.0%    | 17.9%    | 0.0%     | 11.3%    | 0.0%     | 5.4%     | 6.5%     |
| % Professional Construction Mgmt (CM)   | 16.7%    | 0.2%     | 0.0%     | 0.3%     | 0.0%     | 6.9%     | 11.4%    |
| % Others  | 0.0%     | 0.4%     | 0.0%     | 1.5%     | 0.0%     | 0.0%     | 0.0%     |

n/a: data not available

\$ in thousands

## **Appendix**

- Survey of Hospital Construction Needs
- Survey of Long Term Care Facility Construction Needs

## CONSTRUCTION NEEDS OF HOSPITAL FACILITIES

### I. INFORMATION ABOUT THE HOSPITAL

- a. How many beds are in the hospital? Licensed beds: \_\_\_\_\_ Set up beds: \_\_\_\_\_
- b. How many beds are in each of the following?

|                                      |                      |
|--------------------------------------|----------------------|
| Intensive/critical care rooms: _____ | Private rooms: _____ |
| Semi-private rooms: _____            | Wards: _____         |
- c. What is the average occupancy rate? \_\_\_\_\_ % of set up beds
- d. What is average number of admissions per year? \_\_\_\_\_
- e. What is the age of the primary hospital structure? \_\_\_\_\_ years
- f. Is the hospital owned or operated wholly or in part by a government agency?  
\_\_\_\_\_ yes      \_\_\_\_\_ no  
If yes, please specify: federal: \_\_\_\_\_ %      state: \_\_\_\_\_ %  
                        county: \_\_\_\_\_ %      city: \_\_\_\_\_ %

### II. CONSTRUCTION PLANS FOR THE HOSPITAL

- a. How much money was spent on construction at the hospital in 1995? \$ \_\_\_\_\_
- b. Approximately how were those expenditures distributed?

|                                |                                 |
|--------------------------------|---------------------------------|
| New construction: _____ %      | Maintenance and repair: _____ % |
| Renovation/remodeling: _____ % |                                 |
- c. What is the general nature of the new construction or the renovation/remodeling?

|   |                                  |
|---|----------------------------------|
| _____ % add patient rooms   | _____ % add administrative space |
| _____ % add support space (laboratory, pharmacy, radiology space, etc.) |                                  |
| _____ % add operating rooms   |                                  |
| _____ % add Alzheimer's ward  |                                  |
| _____ % add psychiatric ward  |                                  |
| _____ % other (specify): _____  |                                  |
- d. How much of this work (excluding maintenance/repair) will be done by hospital employees?  
\$ \_\_\_\_\_ or \_\_\_\_\_ %
- e. How much is anticipated to be spent on construction in this year(1996)? \$ \_\_\_\_\_  
How much will probably be spent next year (1997) ? \$ \_\_\_\_\_
- f. Approximately how will these expenditures be distributed?

|                        | 1996    | 1997    |
|------------------------|---------|---------|
| New construction:      | _____ % | _____ % |
| Maintenance & repair:  | _____ % | _____ % |
| Renovation/remodeling: | _____ % | _____ % |

g. Which of the following is most descriptive of your expected facilities construction budget for the next five years? (1997-2001) (check one)

Remain roughly the same       Decrease slightly  
 Increase slightly       Decrease significantly  
 Increase significantly (major addition anticipated)

h. What % of the construction funds are obtained from a state or local government agency (e.g., direct appropriations, tax supported bonds)? \_\_\_\_\_ %

### III. INFORMATION ON MAINTENANCE

a. Of the following, please rank those which have been the source of major maintenance and/or repair costs to your hospital beginning with "1" as the worst problem area.

|                |       |                        |       |
|----------------|-------|------------------------|-------|
| external walls | _____ | windows                | _____ |
| internal walls | _____ | handicap accessibility | _____ |
| security       | _____ | mechanical (HVAC)      | _____ |
| flooring       | _____ | plumbing               | _____ |
| electrical     | _____ | lighting               | _____ |
| roof           | _____ | conveyance             | _____ |
| structure      | _____ | other (specify)        | _____ |

b. Based on the past problems, describe any changes that would be made if any particular system or component were to be replaced.

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c. Which of the following have been the cause of significant maintenance and repair costs to your hospital? Please, rank the following beginning with "1" as the worst problem area:

|                                      |       |                        |       |
|--------------------------------------|-------|------------------------|-------|
| federal, state, or local laws        | _____ | aging of facility      | _____ |
| material (accelerated deterioration) | _____ | poor design            | _____ |
| construction (poor workmanship)      | _____ | technology replacement | _____ |
| normal wear and tear                 | _____ | other (specify)        | _____ |

### IV. INFORMATION ON CONSTRUCTION CONTRACTS

a. Approximately how many separate construction contracts will be awarded next year (1997)? \_\_\_\_\_

b. What type of construction contracts are generally awarded?

% lump sum (fixed price)  
 % cost plus  
 % other (specify): \_\_\_\_\_

c. What percent of the construction contracts are competitively bid? \_\_\_\_\_ %

d. How are contractors invited to submit bids? (check one)

bidding is open to all contractors  
 bidding is restricted to selected firms on bidders list  
 contract awards are made on the basis of negotiation  
 other (specify): \_\_\_\_\_

e. How are the costs of construction contracts distributed (in monetary terms)?

% general contractor  
 % subcontractors (specialty contractors)  
 % design build  
 % professional construction management (CM) contract  
 % other (specify): \_\_\_\_\_

## V. OPTIONAL

What is your **top** construction-related problem?

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What **trends** relating to construction, if any, do you see impacting hospital construction over the next 5-10 years?

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## VI. REQUEST FOR SUMMARY REPORT

If you would like a copy of the summary report please provide the following information. Please note that your comments and survey responses will be treated as strictly **confidential**.

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Institution: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

## SURVEY OF LONG-TERM CARE FACILITY CONSTRUCTION NEEDS

### I. INFORMATION ABOUT THE LONG-TERM CARE FACILITY

a. Please describe your facility:

Number of skilled nursing beds: \_\_\_\_\_ licensed: \_\_\_\_\_ set up beds: \_\_\_\_\_

Number of intermediate care beds: \_\_\_\_\_ licensed: \_\_\_\_\_ set up beds: \_\_\_\_\_

Number of boarding house (assisted living) beds: \_\_\_\_\_ licensed: \_\_\_\_\_ set up beds: \_\_\_\_\_

Number of independent living unit beds: \_\_\_\_\_ licensed: \_\_\_\_\_ set up beds: \_\_\_\_\_

Number of other beds: \_\_\_\_\_ (please specify: \_\_\_\_\_)

b. What is the average occupancy rate? \_\_\_\_\_ % of set up beds

c. What is average number of admissions per year? \_\_\_\_\_

d. What is the age of the facility's primary structure? \_\_\_\_\_ years

e. Is the facility owned or operated wholly or in part by a government agency?

\_\_\_\_\_ yes      \_\_\_\_\_ no

If yes, please specify: federal: \_\_\_\_\_ % state: \_\_\_\_\_ %  
county: \_\_\_\_\_ % city: \_\_\_\_\_ % hospital district: \_\_\_\_\_ %

### II. CONSTRUCTION PLANS FOR THE LONG-TERM CARE FACILITY

a. How much money was spent on construction at the facility in 1995? \$ \_\_\_\_\_

b. Approximately how were those expenditures distributed?

New construction: \_\_\_\_\_ % Maintenance and repair: \_\_\_\_\_ %

Renovation/remodeling: \_\_\_\_\_ %

c. What is the general nature of the new construction or the renovation/remodeling?

\_\_\_\_\_ % add rooms for residents

\_\_\_\_\_ % add administrative space

\_\_\_\_\_ % add support space (dining, lounge area, activity room, etc.)

\_\_\_\_\_ % updating to meet building (fire) codes

\_\_\_\_\_ % other (specify): \_\_\_\_\_

d. How much of this work (excluding maintenance/repair) will be done by facility employees?

\$ \_\_\_\_\_ or \_\_\_\_\_ %

e. How much is anticipated to be spent on construction in this year(1996)? \$ \_\_\_\_\_

How much will probably be spent next year (1997) ? \$ \_\_\_\_\_

f. Approximately how will these expenditures be distributed?

|                         | 1996    | 1997    |
|-------------------------|---------|---------|
| New construction:       | _____ % | _____ % |
| Maintenance and repair: | _____ % | _____ % |
| Renovation/remodeling:  | _____ % | _____ % |

g. Which of the following is most descriptive of your expected facilities construction budget for the next five years? (1997-2001) (check one)

Remain roughly the same       Decrease slightly  
 Increase slightly       Decrease significantly  
 Increase significantly (major addition anticipated)

h. What % of the construction funds are obtained from a state or local government agency (e.g., direct appropriations, tax supported bonds)? \_\_\_\_\_ %

### III. INFORMATION ON MAINTENANCE

a. Of the following, please rank those which have been the source of major maintenance and/or repair costs to your hospital beginning with "1" as the worst problem area.

|                |       |                        |       |
|----------------|-------|------------------------|-------|
| external walls | _____ | windows                | _____ |
| internal walls | _____ | handicap accessibility | _____ |
| security       | _____ | mechanical (HVAC)      | _____ |
| flooring       | _____ | plumbing               | _____ |
| electrical     | _____ | lighting               | _____ |
| roof           | _____ | conveyance             | _____ |
| structure      | _____ | other (specify)        | _____ |

b. Based on the past problems, describe any changes that would be made if any particular system or component were to be replaced.

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|--------------------------------------|-------|------------------------|-------|
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| construction (poor workmanship)      | _____ | technology replacement | _____ |
| normal wear and tear                 | _____ | other (specify)        | _____ |

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\_\_\_\_\_ % cost plus  
\_\_\_\_\_ % other (specify): \_\_\_\_\_

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other (specify): \_\_\_\_\_

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% subcontractors (specialty contractors)

% design build

% professional construction management (CM) contract

% other (specify): \_\_\_\_\_

## V. OPTIONAL

What is your **top** construction-related problem?

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